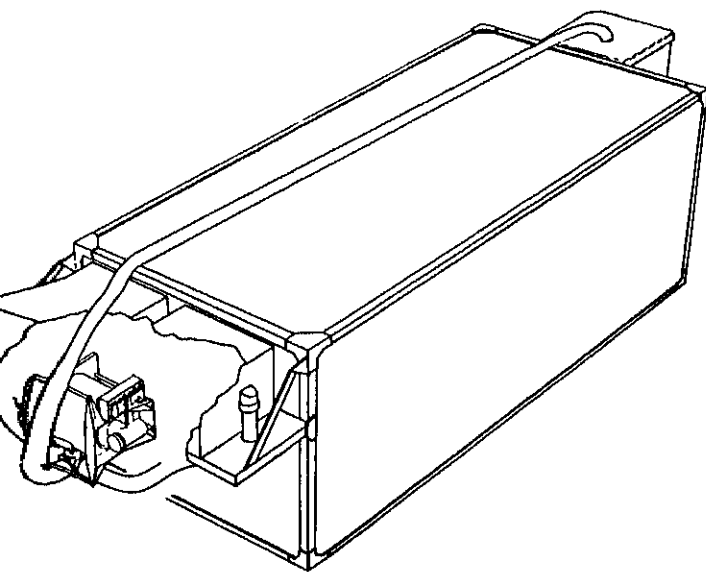


TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)



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COLLECTIVE PROTECTION EQUIPMENT, GUIDED MISSILE SYSTEM, PATRIOT CONSISTING OF

ENTRANCE, PROTECTIVE, PRESSURIZED, COLLAPSIBLE, M14

(NSN 4240-01-105-5521);

FILTER UNIT, GAS-PARTICULATE, 400 CFM, 208 V, 400 Hz, M59

(NSN 4240-00-237-0223);

AND

INSTALLATION KIT, CBR, PROTECTIVE EQUIPMENT, PATRIOT M265

(NSN 4240-01-110-7617)

HEADQUARTERS, DEPARTMENT OF THE ARMY

30 NOVEMBER 1982

WARNINGS

High voltage is used to power this equipment. Before removing or installing power cable, be sure that POWER switch on compartment control module is set to OFF position and that the collective protection equipment power source is shut down to avoid personal injury or loss of life.

If filter unit is operating, high voltage is present at the 208V indicator socket on the power distribution unit. Personal injury or loss of life may result if socket is contacted.

Do not remove covers to service components after toxic exposure without observing proper handling procedures.

Filter seals must be properly seated to prevent bypass of contaminated air:

- Torque access cover bolts 180 to 200 inch-pounds to seat gas filter.
- Tighten inner cover retaining bar until sleeve is flush with top surface to seat particulate filter.

TECHNICAL MANUAL

TM 3-4240-285-20&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC 30 November 1982

Organizational Maintenance Manual
(Including Repair Parts and Special Tools List)
**COLLECTIVE PROTECTION EQUIPMENT,
GUIDED MISSILE SYSTEM, PATRIOT
CONSISTING OF
ENTRANCE, PROTECTIVE, PRESSURIZED, COLLAPSIBLE, M14
(NSN 4240-01-105-5521);
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(NSN 4240-01-110-7617)**

Current as of August 1982

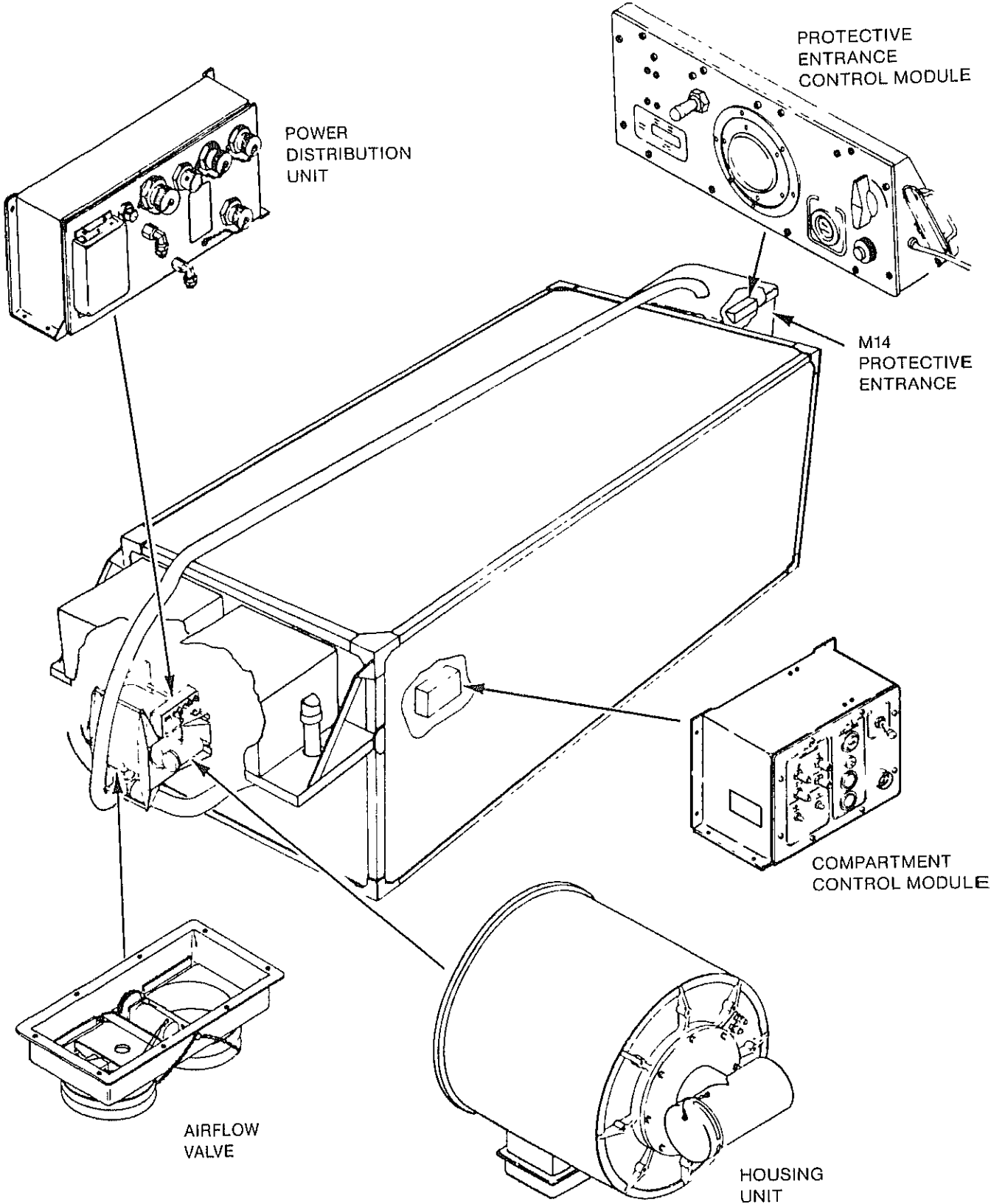
REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS-C, Aberdeen Proving Ground, MD 21010. A reply will be furnished to you.

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CHAPTER 1 INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE.

- a. *Type of Manual:* Organizational maintenance, including the repair parts and special tools list.
- b. *Model Numbers and Equipment Names:*
 - M14 protective entrance —
Protective entrance control module
 - M59 gas-particulate filter unit —
Housing unit
Airflow valve
Power distribution unit
Compartment control module
 - M265 installation kit
- c. *Purpose of Equipment.* Provides filtered air under positive pressure to field shelters.

<i>Common Name</i>	<i>Official Nomenclature</i>
M59 gas-particulate filter unit	Filter Unit, Gas-Particulate, 400 CFM, 208 V, 400 Hz, M59
M265 Installation kit	Installation Kit, M265
Cable C5-19-6162-20	Cable Assembly, Special Purpose Electrical, C5-19-6162-20
Cable C5-19-6170-10	Cable Assembly, Special Purpose Electrical, C5-19-6170-10
Cable C5-19-6712	Cable Assembly, Special Purpose Electrical, C5-19-6712
Cable W90	Cable Assembly, Special Purpose Electrical, W90
Cable W91	Cable Assembly, Special Purpose Electrical, W91

- 1-2. **MAINTENANCE FORMS, RECORDS, AND REPORTS.** Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

- 1-3. **DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE.** Refer to TM 43-0002-31, Destruction of Chemical Weapons and Defense Equipment to Prevent Enemy Use.

- 1-4. **PREPARATION FOR STORAGE OR SHIPMENT.** Refer to TM 740-90-1 for administrative storage instructions.

- 1-5. **NOMENCLATURE CROSS-REFERENCE LIST.** Nomenclature cross-references used in this manual includes:

<i>Common Name</i>	<i>Official Nomenclature</i>
M14 protective entrance	Entrance, Protective, Pressurized, Collapsible, M14

- 1-6. **REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).** If your collective protection equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAY-MA, Aberdeen Proving Ground, MD 21010. We'll send you a reply.

Section II EQUIPMENT DESCRIPTION AND DATA

1-7. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

Characteristics

- Collective protection equipment (CPE) allows operation in a chemical/biological agent contaminated zone.
- The filter unit provides filtered air under positive pressure to the M14 protective entrance and to the PATRIOT shelter
- Positive pressure prevents dangerous amounts of chemical and biological (CB) agents from entering the protected area
- The M14 protective entrance, while under positive pressure, allows personnel to enter or leave without loss of positive pressure protection in the PATRIOT shelter.

Capabilities and Features

- Both the M14 protective entrance and the PATRIOT Shelter utilize control modules.
- Major components of the CPE may be attached or detached from the PATRIOT shelter without affecting the shelter operation.
- Modular design of CPE permits:
 - a. Easy access to the major components for servicing and maintenance.
 - b. Quick replacement of malfunctioning components.

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

- (A)** PROTECTIVE ENTRANCE. Consists of:
- Shell assembly, which is in two halves, forms the roof and floor.
 - Door assembly, when fully extended, provides access to the protective entrance. The door frame supports the front of the protec-

tive entrance.

- Two support assemblies, when fully extended, form rigid poles between the roof and the floor of the shell assembly. The support assemblies are located at the rear of the protective entrance.
- An impermeable fabric assembly attaches to the two halves of the shell assembly. When the fabric is fully extended, it forms the protective entrance walls.

(B) PROTECTIVE ENTRANCE CONTROL MODULE. Mounted in the roof of the shell assembly, provides white/or black-out red light, purge timing and low pressure warning for the protective entrance.

(C) GAS-PARTICULATE FILTER UNIT. The filter unit housing contains the main fan, gas filters and particulate filters. Inner and outer access covers permit changing the filters.

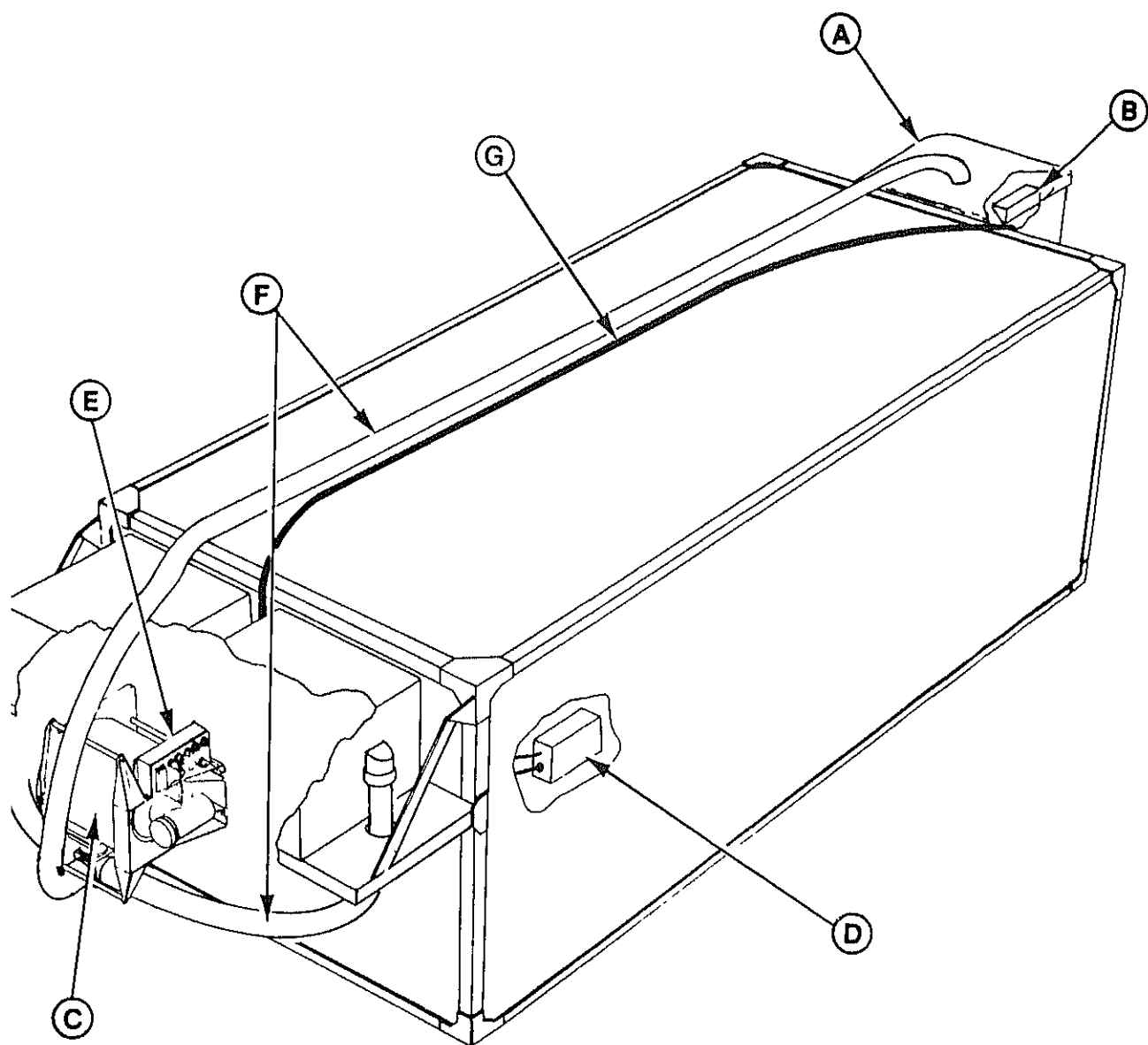
- The airflow valve, attached to the outside of the filter unit housing, controls the airflow between the filter unit, the shelter, and the protective entrance.

(D) COMPARTMENT CONTROL MODULE. Mounts inside the shelter and contains controls and indicators to operate the collective protection equipment

(E) POWER DISTRIBUTION UNIT. Mounts on the outside of the shelter at the filter unit. It serves as the electrical power distribution center for the collective protection equipment.

(F) AIRDUCT HOSE. Large diameter (6 in.) impermeable fabric hose, in 6 foot sections, connects filter unit, shelter, and protective entrance for filtered air circulation.

(G) SPECIAL PURPOSE ELECTRICAL CABLES. Five cables route electrical power and operating signals between the filter unit, power distribution unit, compartment control module, and protective entrance. (All cables are not shown)



MAJOR COMPONENTS

1-9. IDENTIFICATION, INSTRUCTION, AND WARNING PLATES.

PURGE
INSTRUCTIONS
ROTATE TIMER KNOB
TO 5 (5 MINUTES) PURGE
INDICATOR WILL COME ON
WHEN PURGE INDICATOR
GOES OUT PURGE CYCLE
IS COMPLETE

NO STEP

OPENING PROCEDURES

- 1 REMOVE CAP AND ATTACH AIR HOSE
- 2 DISENGAGE LATCHES - RAISE TOP TO FULL HEIGHT
- 3 OPEN DOOR, INSERT DETENT PINS IN DOOR FRAME
(OPENING INSTRUCTIONS CONTINUED ON PE WALL)

CLOSING PROCEDURES

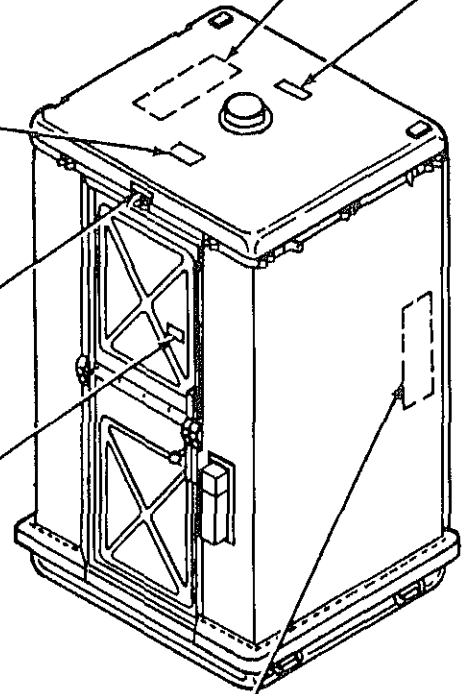
- 7 LOWER SIDE - TUCK IN ALL FABRIC - LOWER BACK SIDE
- 8 CHECK FOR FABRIC AND SHELL ALIGNMENT - SECURE LATCHES
- 9 REMOVE AIR HOSE - REPLACE CAP

ENTRANCE PROTECTIVE PRESSURIZED
COLLAPSIBLE, M14

NSN
SERIAL NO
CONT NO US

CAUTION
DO NOT ENTER WHEN
PROTECTIVE ENTRANCE
IS OCCUPIED

AIRFLOW VALVE
NSN
SERIAL NO
CONT NO US

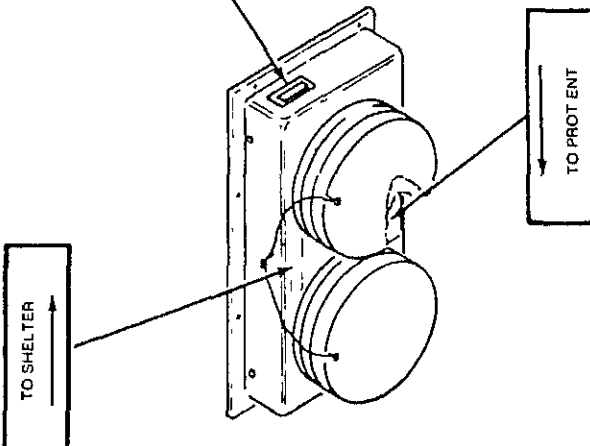


ERECT PROCEDURES

- 4 ERECT REAR SUPPORTS - ENGAGE WITH POSTS IN TOP
- 5 PULL DETENT PINS HOLDING BRACES AND INSERT THRU SUPPORT JOINTS
- 6 LOWER BRACES INTO BRACKETS - INSERT DETENT PINS
- 7 PULL INTERFACE FABRIC OUTWARD AND STRAIGHTEN
- 8 ALIGN PROTECTIVE ENTRANCE INTERFACE WITH SHELTER CHANNEL
- 9 INSERT INTERFACE INTO CHANNEL (DEPTH INDICATED BY ARROW--HEADS) - SECURE WITH SCREWS
- 10 REMOVE A SIDEWALL CAP AND INSTALL AIR HOSE IF NEEDED FOR RECIRCULATION
- 11 CONNECT ELECTRICAL CABLE

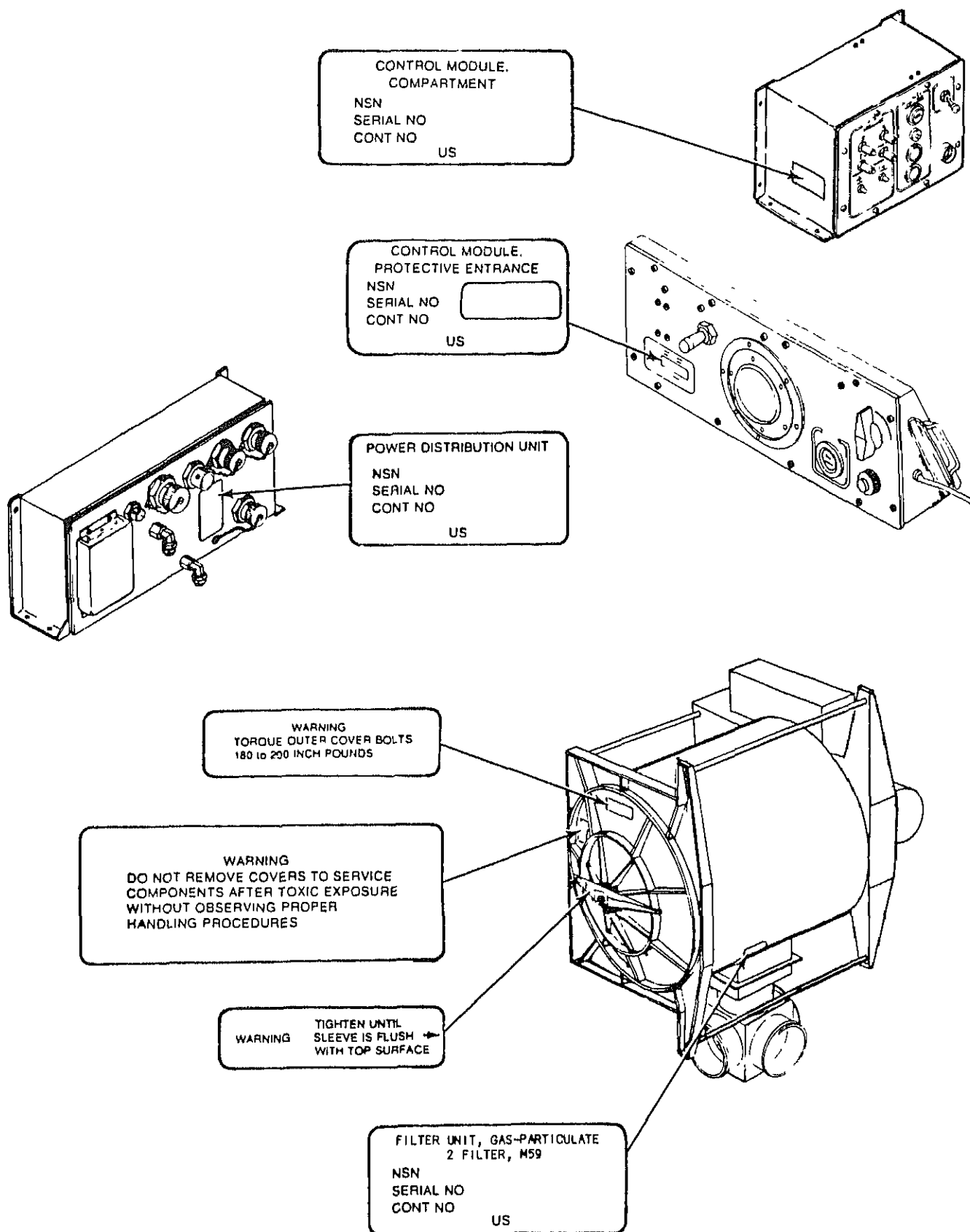
STRIKE PROCEDURES

- 1 DISCONNECT ELECTRICAL CABLE AND RECIRCULATION AIR HOSE
REPLACE CAPS OVER AIR OPENING AND ELECTRICAL CONNECTOR
- 2 LOOSEN SCREWS SECURING INTERFACE - REMOVE PROTECTIVE
ENTRANCE FROM SHELTER - PUSH INTERFACE INSIDE FLUSH TO WALL
- 3 CLEAN FLOOR AREA - CLOSE AND LATCH DOOR
- 4 SUPPORT TOP - RAISE BRACES AND SECURE TO REAR SUPPORTS USING
DETENT PINS FROM SUPPORT JOINTS - FOLD AND SECURE TO FLOOR
WITH STRAPS
- 5 SUPPORT TOP (FRONT AND BACK) - REMOVE DETENT PINS FROM DOOR
FRAME
- 6 PUSH DOOR IN AT CENTER - LOWER TOP LEVEL SLOWLY TO 2" HIGH -
INTERFACE MUST FORM ACCORDIAN FOLD (CLOSING INSTRUCTIONS
CONTINUED ON TOP OF P E)



TO SHELTER

TO PROT ENT



1-10. EQUIPMENT DATA.

Dimensions and Weights of Collective Protection Equipment Components

Component	Length		Width		Height		Weight	
	Inch	CM	Inch	CM	Inch	CM	LB	Kg
M14 protective entrance packaged dimensions erected dimensions	49.3	125.22	43.3	109.98	12.5	31.75	145	65.8
	49.3	125.22	43.3	109.98	85.4	216.91	145	65.8
Protective entrance control module	16	40.64	6.75	17.14	5	12.70	7.5	3.40
M59 gas-particulate filter unit	34	86.4	36	91.40	32	81.30	256	116.1
Compartment control module	7.7	19.55	11.75	29.84	6.5	16.51	9	4.09
Power distribution unit	18.5	46.99	8.25	20.95	4.25	10.79	16	7.26
	Outer Dia		Inner Dia					
Particulate filter (each)	16.6	42.16	12	30.48	10	25.40	7.8	3.54
	Outer Dia		Inner Dia					
Gas filter (each)	21.4	54.35	16.7	42.41	10	25.40	37.8	17.1

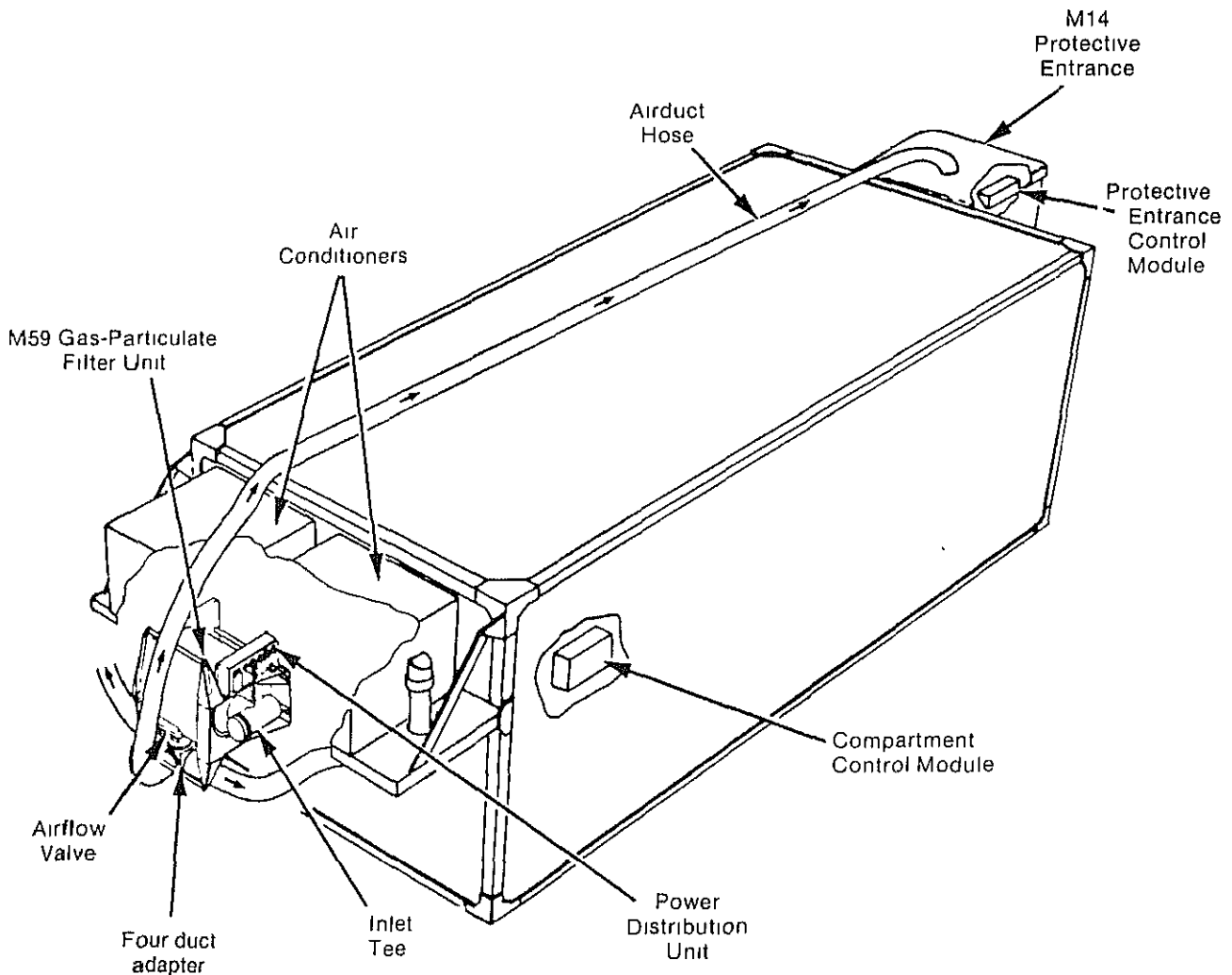
Operating Power Requirements and Characteristics of Collective Protection Equipment Components

Component	Power Requirements	Input Voltage	Maximum Capacity	Airflow (cfm)
Protective entrance control module	2 amp at 28 V dc	28 V dc	3.5 kW	400 maximum
M59 gas-particulate filter unit	1700 Watts	208 V, 400 Hz, 3-phase		
Airflow valve	1 amp max at 28 V dc			
Power distribution unit		208 V, 400 Hz, 3-phase		40 minimum at 20.0 in. wg
Compartment control module	1 amp max at 28 V dc	28 V dc		
Particulate filters				400
Gas filters				400

Section III PRINCIPLES OF OPERATION

1-11. AIR FILTERING AND PRESSURIZATION SYSTEM.

- a. The M59 gas-particulate filter unit removes toxic gases and dust from the air supplied to the shelter and M14 protective entrance. The fan draws outside air through the air inlet and forces it into the filter unit. The fan forces filtered air from the filter unit to the airflow valve. The airflow valve directs filtered air to the shelter and M14 protective entrance. Airduct hoses deliver filtered air to the M14 protective entrance. Filtered air enters the shelter through the air conditioner. Pressure sensing components in the compartment control module automatically adjust the airflow valve to maintain a positive pressure in the shelter.
- b. The M14 protective entrance provides a pressurized transition area between the shelter and the outside contaminated zone. Personnel entering from the outside must wait five minutes within the protective entrance before entering the shelter. The flow of the filtered air purges contamination from the M14 protective entrance. The protective entrance control module contains the purge timer and a low-pressure warning indicator.



CHAPTER 2 MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

- 2-1. COMMON TOOLS AND EQUIPMENT.** For authorized common tools and equipment, refer to the modified table of organization and equipment (MTOE) applicable to your unit
- 2.2 SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.** No special tools, TMDE, or support equipment are required.
- 2.3 REPAIR PARTS.** Repair parts are listed and illustrated in Appendix C of this manual

Section II. SERVICE UPON RECEIPT

- 2.4 SERVICE UPON RECEIPT.** Refer to the following operator's and organizational maintenance manuals as appropriate:
- | | |
|---------------------|----------------------------------|
| *TM 9-1430-600-12-1 | Engagement Control Station |
| *TM 9-1430-602-12-1 | Information Coordination Central |
| *TM 9-1430-604-12-1 | Communication Relay Group |

Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

- 2.5 PMCS PROCEDURES.**
- a. *General.* The PMCS procedures are contained in following table. They are arranged in logical sequence requiring a minimum amount of time and motion on the part of the persons performing them and are arranged so that there will be a minimum interference between persons performing checks simultaneously on the same end item.
 - b. *Item Number Column.* Checks and services are numbered in chronological order regardless of interval. This column shall be used as a source of item numbers of the "TM Number" column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results of PMCS.
 - c. *Item To Be Inspected Column.* The items listed in this column are divided into groups indicating the portion of the equipment of which they are a part, for example, "Filter Unit," "Protective Entrance." Under these groupings, the items to be inspected are identified by as few words, usually the common name, as will clearly identify the item, for example, "main fan assembly," "airflow valve."
 - d. *Procedures Column.* This column contains a brief description of the procedure by which the check is to be performed. It contains all the information required to accomplish the checks and services, including appropriate tolerances, adjustment limits, and instrument and gage readings

* To be published

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) SEMIANNUAL SCHEDULE

NOTE

Perform checks and services in the order listed before you perform functional testing.

Item No	Item To Be Inspected	Procedures
1	<u>M59 gas-particulate filter unit</u>	
	Filter housing outside surfaces	<p>Inspect identification and instruction plates. You must be able to read them. Replace plates if necessary (p. 2-65 and 2-66).</p> <p>Inspect outside surfaces for rust, chipped paint, or bare metal on painted surfaces. Repaint or touchup as necessary (p. 2-65).</p> <p>Make sure that all parts are secure and that there is no loose or missing hardware. Tighten loose hardware. Replace missing hardware.</p>
	Main fan assembly cable	Inspect cable assembly for bare wires, broken insulation, broken or damaged connector. Replace damaged main fan assembly (p. 2-74).
	Airflow valve	Inspect valve for damage and loose mounting hardware. Replace missing mounting hardware. Replace damaged airflow valve (p. 2-76).
	Power distribution unit	<p>Inspect unit for loose or missing mounting hardware. Tighten loose hardware. Replace missing hardware.</p> <p>Inspect for damage or missing electrical covers. Replace power distribution unit if the covers are damaged or missing (p. 2-79).</p>
	Gas-particulate filters	<p>Remove filters (p. 2-68) and check for physical or water damage.</p> <p>Inspect housing seal and inner cover gasket for damage. Replace seal or gasket if unserviceable (p. 2-69). Reinstall filters or install new filters (p. 2-70).</p>
2	<u>M265 installation kit</u>	
	Special purpose electrical cable assemblies	Inspect cable assemblies for bare wires, broken insulation, broken or damaged connectors. Replace damaged cable assemblies (p. 2-83 through 2-95).
	Air duct hoses	Inspect air duct hoses for damage or missing clamps. Repair or replace air duct hoses if necessary (p. 2-96). Replace missing clamps.

Item No	Item To Be Inspected	Procedures
3	<u>M14 protective entrance</u>	<p>Inspect identification and instruction plates. You must be able to read them. Replace plates if necessary (p. 2-51).</p> <p>Inspect outside surface for chipped paint or bare metal on painted surfaces. Repaint or touchup as necessary (p. 2-56).</p> <p>Make sure that all parts are secure and that there is no loose or missing hardware. Tighten loose hardware (p. 2-50). Replace missing hardware.</p>
4	<u>Collective protection equipment</u>	<p>Perform functional testing (p. 2-3 through p. 2-9).</p>

Section IV. FUNCTIONAL TESTING

- 2-6. GENERAL.** This section contains instructions for functional testing the collective protection equipment for shelter. These tests must be performed following installation of the equipment, and semiannually thereafter.
- a. *Preventive Maintenance Checks and Services (PMCS).* Perform PMCS on page 2-1 before performing functional testing.
 - b. *Troubleshooting Procedures.* Refer to troubleshooting on page 2-10 for malfunctions and corrections.

2-7. FUNCTIONAL TEST.

LOCATION	ITEM	ACTION	INDICATION/REMARKS
----------	------	--------	--------------------

Power
Circuit

Cables

Check that all connections are
tight

Connector J6 on power
distribution unit is not used.

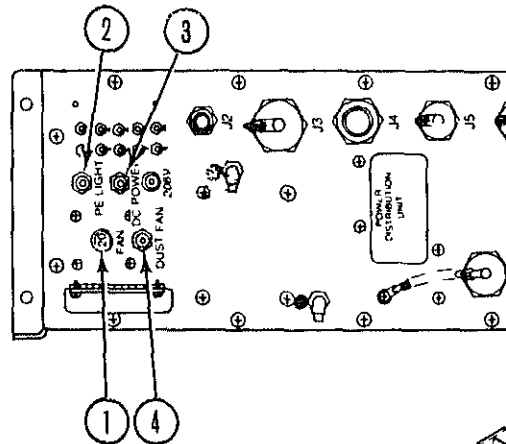
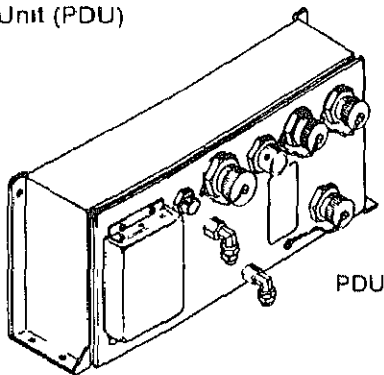
Power source

Check that power is supplied
to power distribution unit.

Power
Distribution
Unit (PDU)

Circuit breakers

Check that circuit breakers
(1, 2, 3, and 4) are set.
Press to set



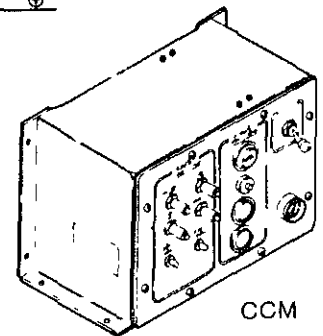
PDU

Compartment
Control
Module (CCM)

Circuit breakers

Set POWER switch (14)
to OFF

Check that circuit breakers
(5, 6, 7, and 8) are set.
Press to set

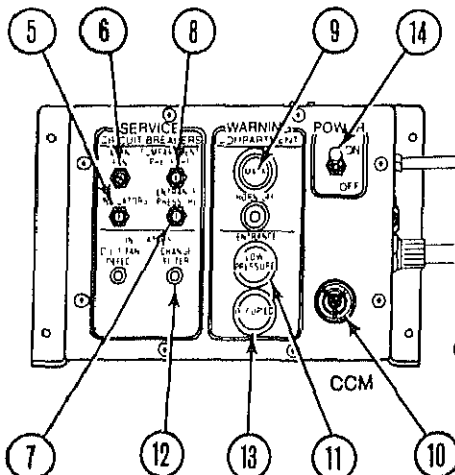


CCM

Indicator lights

Press to test lamps
MASK (9)

Light will flash and warning horn
(10) will sound. Replace lamp if
necessary (p 2-82)



ENTRANCE LOW PRESSURE
(11)

CHANGE FILTER (12)

OCCUPIED (13)

Light will light when pressed.
Replace lamp if necessary
(p 2-82)

Light will light when pressed.
Replace lamp if necessary
(p. 2-82)

Light will light when pressed
Replace lamp if necessary
(p. 2-82)

LOCATION	ITEM	ACTION	INDICATION/REMARKS
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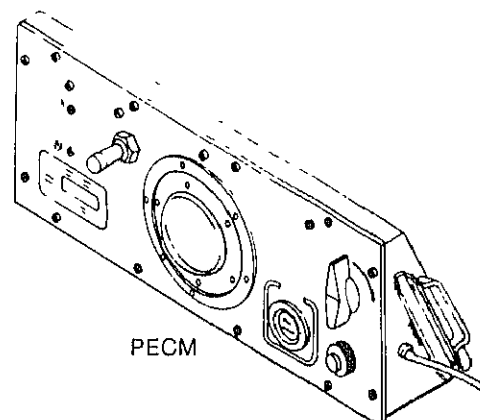
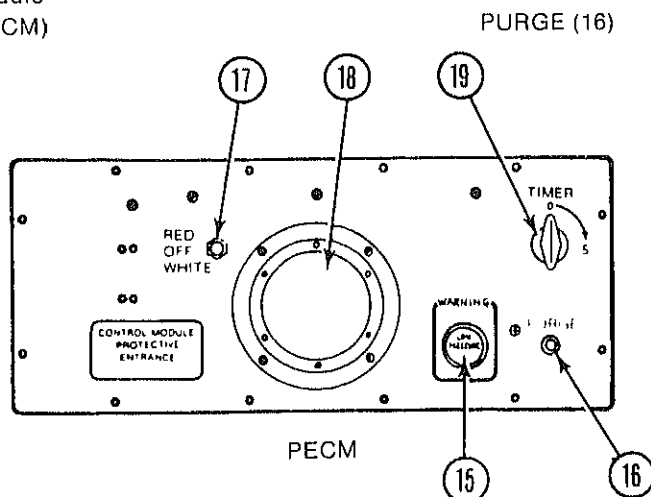
Protective
Entrance
Control
Module
(PECM)

Indicator
lights

Press to test lamps
LOW PRESSURE (15)

Light will light when pressed.
Replace lamp if necessary
(p 2-60)

Light will light when pressed.
Replace lamp if necessary
(p. 2-59)



Dome light

Set dome light switch
(17) to WHITE.

Dome light (18) will show
white light. Replace lamp
if necessary (p. 2-61).

Set switch (17) to RED

Dome light (18) will show red
light Replace lamp if
necessary (p 2-61)

Set Switch (17) to OFF

Dome light (18) will go off.

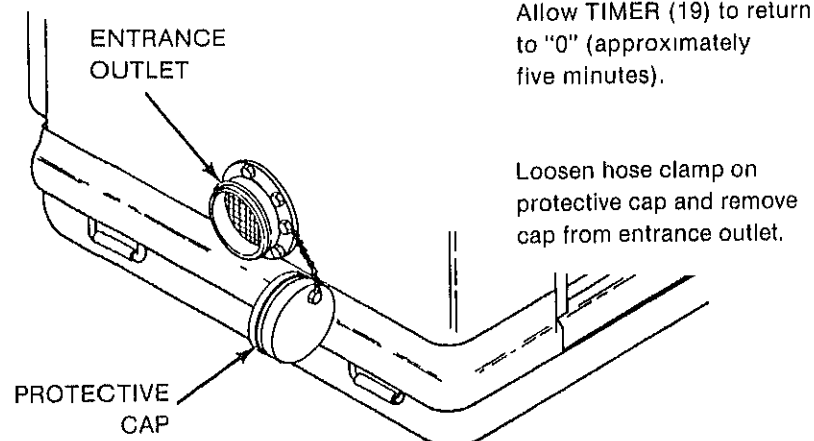
Timer

Rotate TIMER (19) fully
clockwise

PURGE light (16) will light.

OCCUPIED light in compart-
ment control module will light

PURGE and OCCUPIED lights
will go off



2-7. FUNCTIONAL TEST (CONT).

LOCATION	ITEM	ACTION	INDICATION/REMARKS
----------	------	--------	--------------------

Close shelter door and protective entrance door.

Compartment
Control
Module

Pressure
circuit

Set POWER switch (14)
to ON

Main fan must start
and run
MASK indicator light (9) will
flash

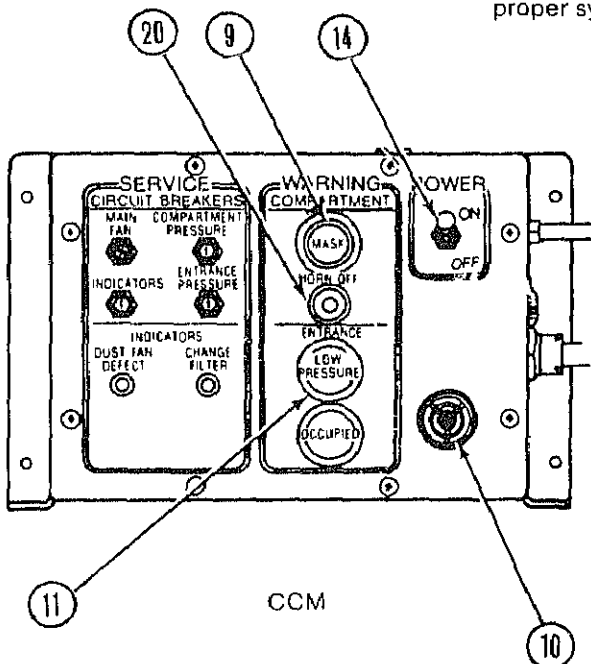
Warning horn (10) will sound
until shelter is pressurized
(approximately 30 seconds)

Allow horn to silence
automatically This will indicate
proper system operation.

MASK light (9) will go off and
warning horn (10) will silence
when proper shelter pressure is
reached

ENTRANCE LOW PRESSURE
light (11) will light when filter unit
is started and then go off when
proper protective entrance
pressure is reached

When loss of power to the
collective protection equipment
occurs with the compartment
control module POWER switch
in the ON position, the MASK
light (9) will flash and warning
horn (10) will sound



Open shelter door

MASK light (9) will flash.

Warning horn (10) will sound

Press HORN OFF button
(20)

Button will stay in pressed posi-
tion Warning horn will stop
sounding. MASK light (9) will
light and stay on

LOCATION	ITEM	ACTION	INDICATION/REMARKS
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Open protective entrance door

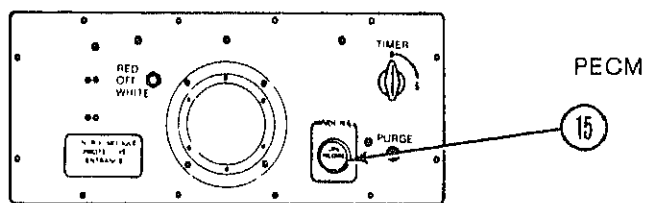
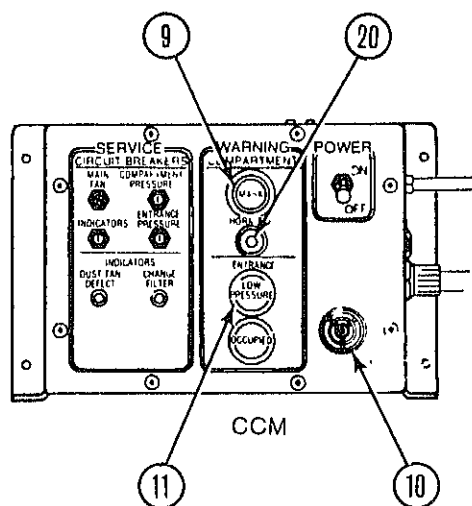
Compartment
Control
Module

Pressure
circuit

ENTRANCE LOW PRESSURE
light (11) will light.

Protective
Entrance
Control
Module

LOW PRESSURE light (15) will
light



Close protective entrance and
shelter doors

Within 30 seconds
ENTRANCE LOW PRES-
SURE light (11) will go off.
Also, the LOW PRESSURE
light (15) on the protective
entrance control module will
go off

MASK light (9) will go off
HORN OFF button (20) will
reset.

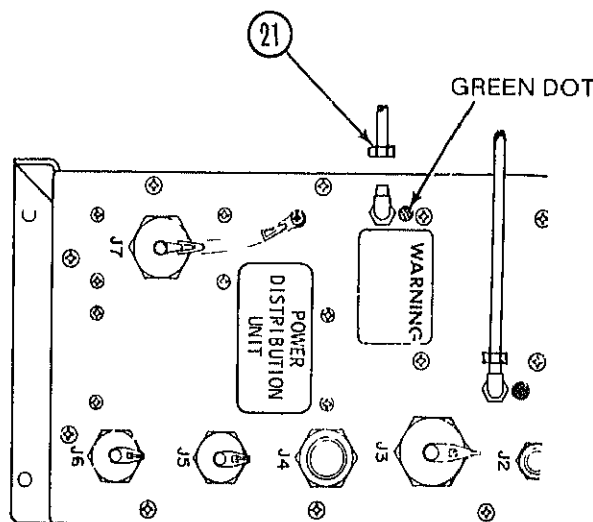
Power
Distribution
Unit

CHANGE FILTER
indicator light

Disconnect tubing (21)
(green dot).

Filter unit must be operating.

PDU



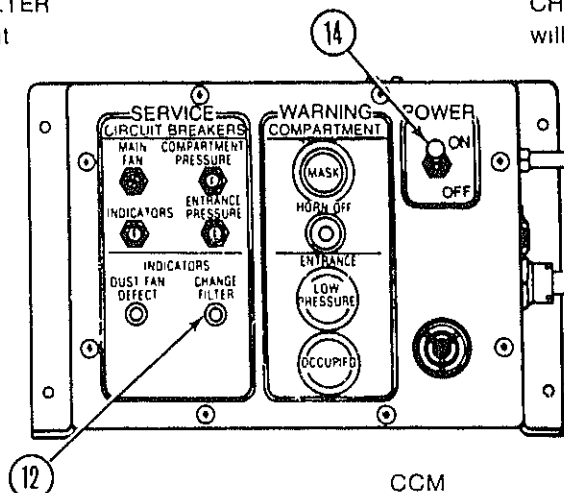
2-7. FUNCTIONAL TEST (CONT).

LOCATION	ITEM	ACTION	INDICATION/REMARKS
----------	------	--------	--------------------

Compartment
Control
Module

CHANGE FILTER
indicator light

CHANGE FILTER light (12)
will light



CCM

Power
Distribution
Unit

Reconnect tubing (21)
(green dot) removed
above
Tighten finger tight

Fan and
Airflow
Valve Housing
Unit

Airflow valve

Close shelter and
protective entrance doors

Filter unit must be operating

Loosen hose clamp (22) on
protective cap (23) and remove
cap from outlet port marked TO
PROT ENT

Open shelter and protective
entrance doors

The sliding plate (24) in the
airflow valve must move to
completely close off the outlet
marked TO PROT ENT

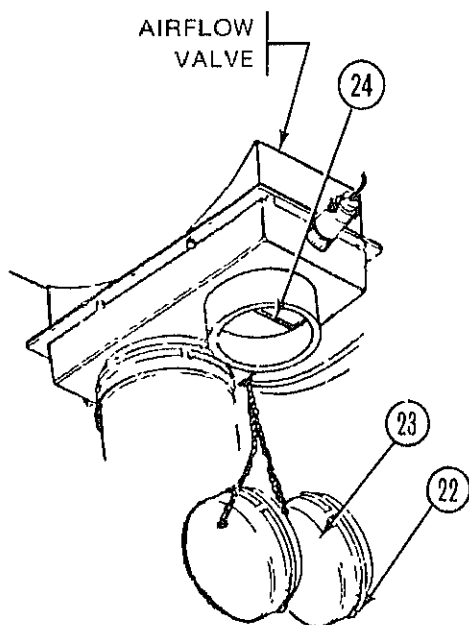
Close shelter door

The sliding plate (24) in the
airflow valve will move toward
the port marked TO SHELTER.
This partly opens the port
marked TO PROT ENT

Turn off filter unit
Set compartment control
POWER switch (14) to OFF

Observe that sliding plate (24)
marked TO PROT ENT is
completely open (port marked
TO SHELTER is closed).

Replace protective cap (23)
on port marked TO PROT ENT.
Tighten hose clamp (22).

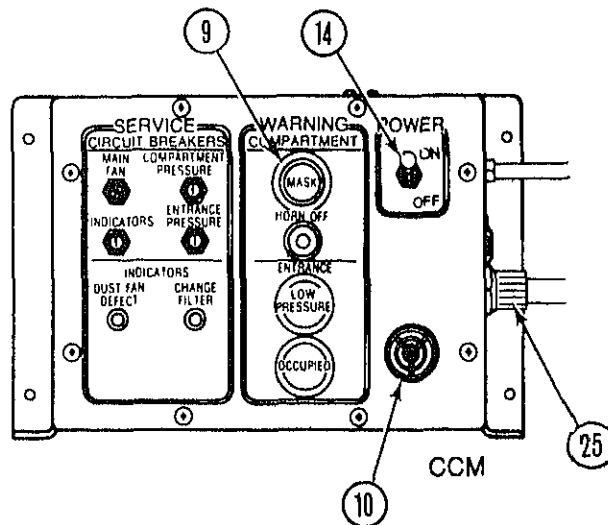


LOCATION	ITEM	ACTION	INDICATION/REMARKS
----------	------	--------	--------------------

NOTE

If the following indications are not obtained, the CCM batteries may need charging. Operate the collective protective equipment for one-half hour and then repeat this check. If indications are still not obtained, replace CCM (p 2-81)

Compartment Control Module	Loss of power warning system	Disconnect plug P1 (25)	
		Set POWER switch (14) to ON.	MASK Light (9) will flash.
			Warning horn (10) will sound.
		Set POWER switch (14) to OFF	
		Reconnect plug P1 (25)	



Section V TROUBLESHOOTING

2-8. GENERAL.

- a. This section contains troubleshooting information for locating and correcting most of the operating troubles which may develop in your protective equipment. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections which will help you to determine corrective actions to take. You should perform the test/inspections and corrective actions in the order listed.

- b. This manual cannot list all possible malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed (except when malfunction and cause are obvious) or is not corrected by listed corrective actions, notify your supervisor.

NOTE

When beginning a troubleshooting procedure, be sure power is on at the CCM and the power source.

2-9. TROUBLESHOOTING PROCEDURES.

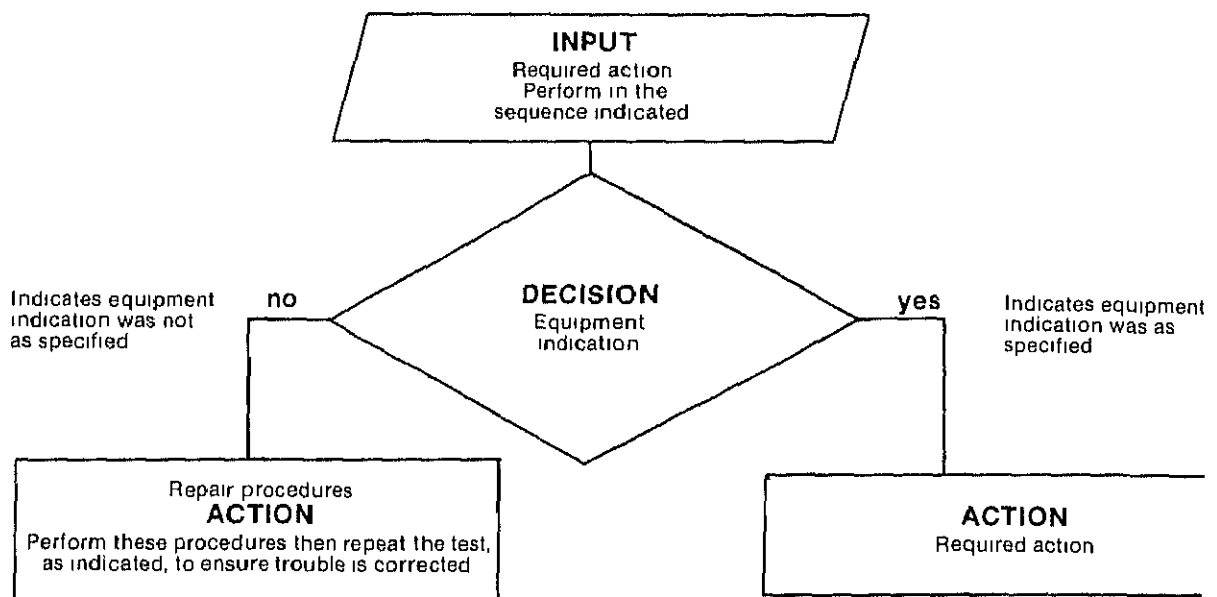
- a. Perform functional test first. Then, use the symptom index for quick access to the troubleshooting procedures.

When measuring voltage at the power distribution unit (PDU), TP #10 is ground.

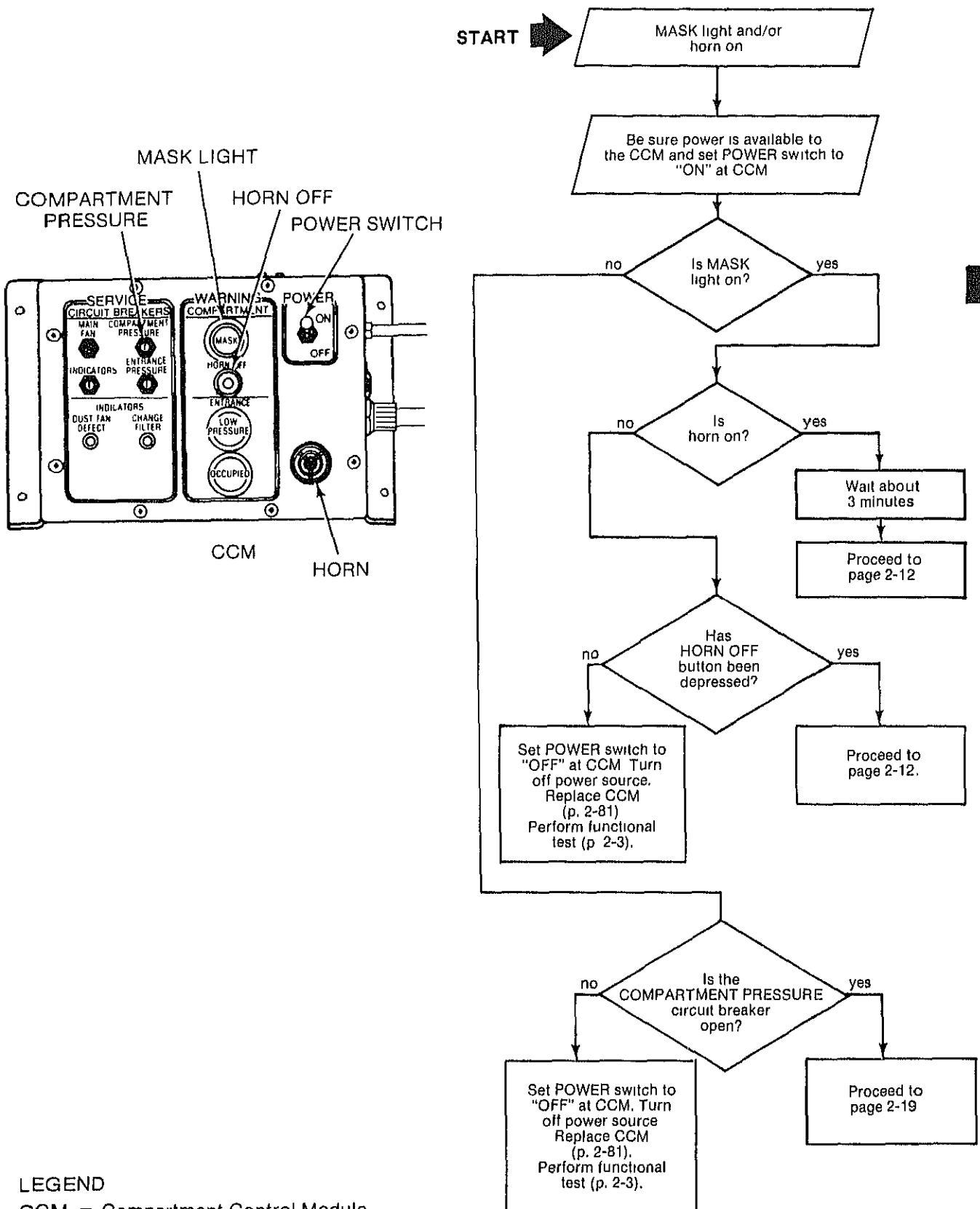
SYMPTOM INDEX

	Troubleshooting Procedure Page
1. MASK light flashing and/or warning horn sounding	2-11
2. Protective entrance LOW PRESSURE lights on	2-21
3. No power indication (all indicator lights do not illuminate when pressed to test)	2-27
4. Protective entrance LOW PRESSURE lights will not come on	2-33
5. CHANGE FILTER lights with clean filter	2-39
6. CHANGE FILTER light does not illuminate	2-40
7. OCCUPIED AND PURGE lights do not operate properly	2-42
8. INDICATORS circuit breaker trips	2-45
9. Protective entrance dome light does not come on	2-48

- b. The following describes the use of the troubleshooting charts:

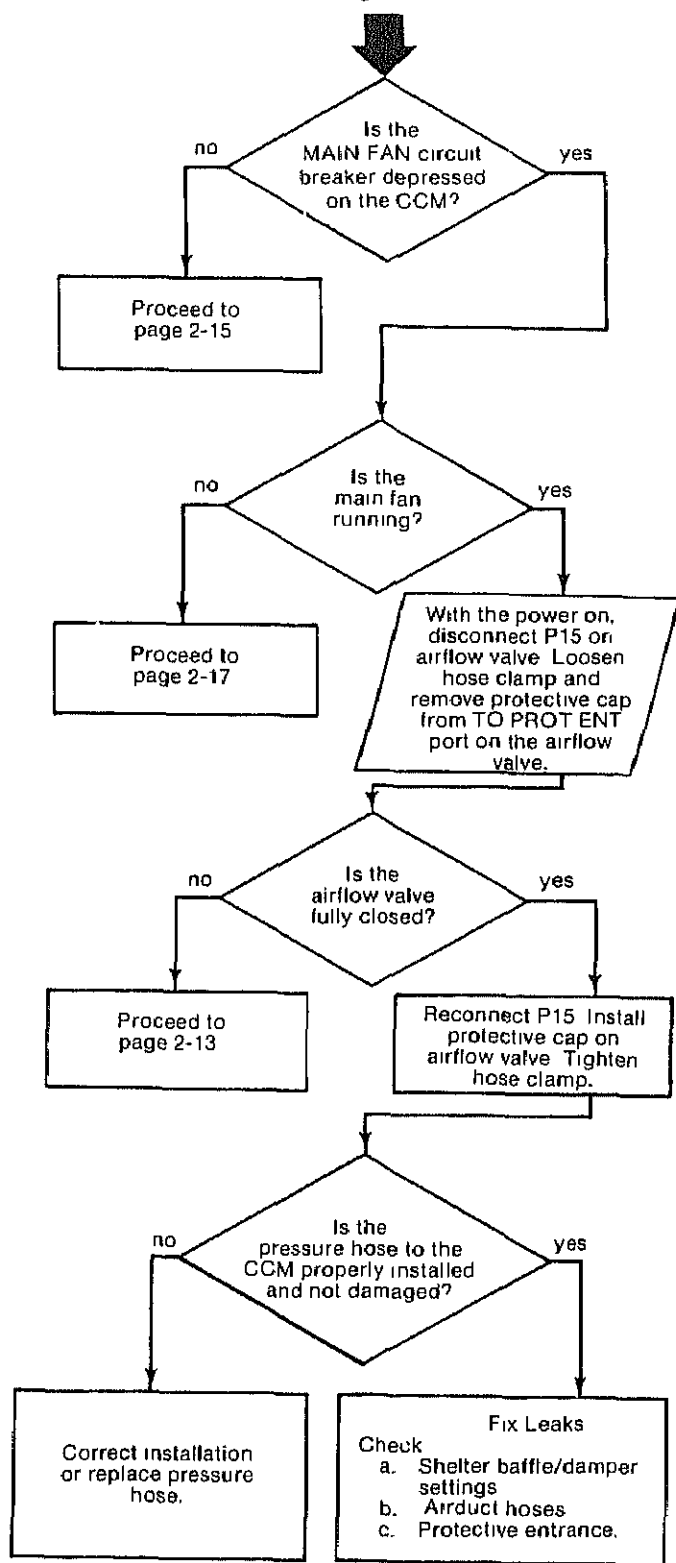


1. MASK LIGHT FLASHING AND/OR WARNING HORN SOUNDING.



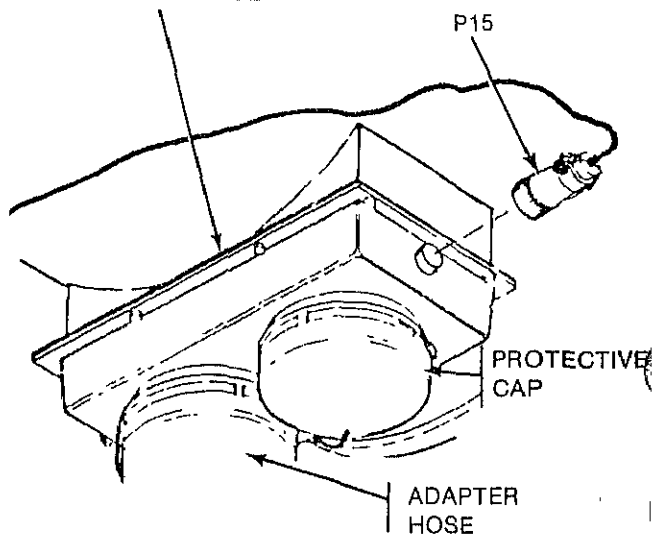
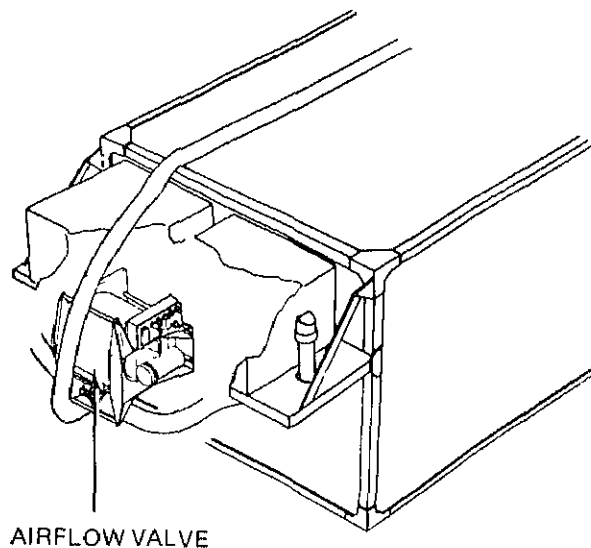
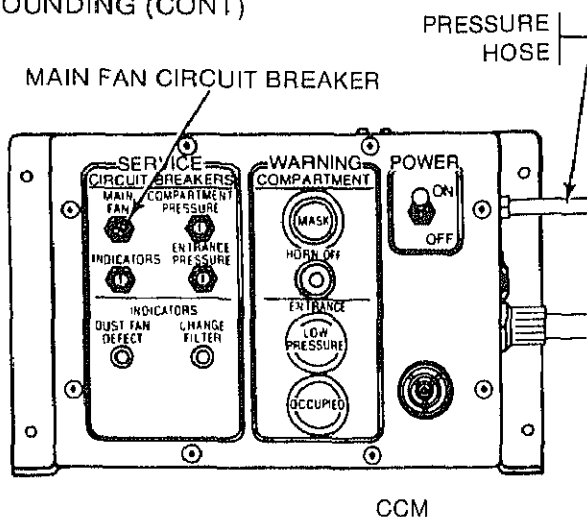
1. MASK LIGHT FLASHING AND/OR WARNING HORN SOUNDING (CONT)

Page 2-11

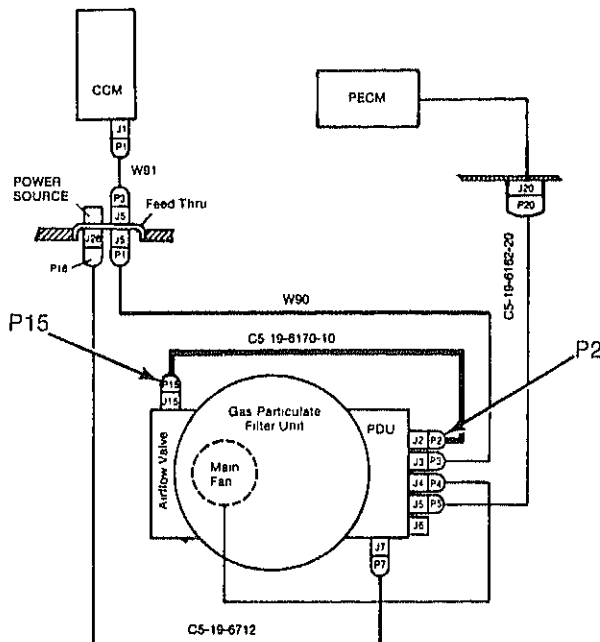
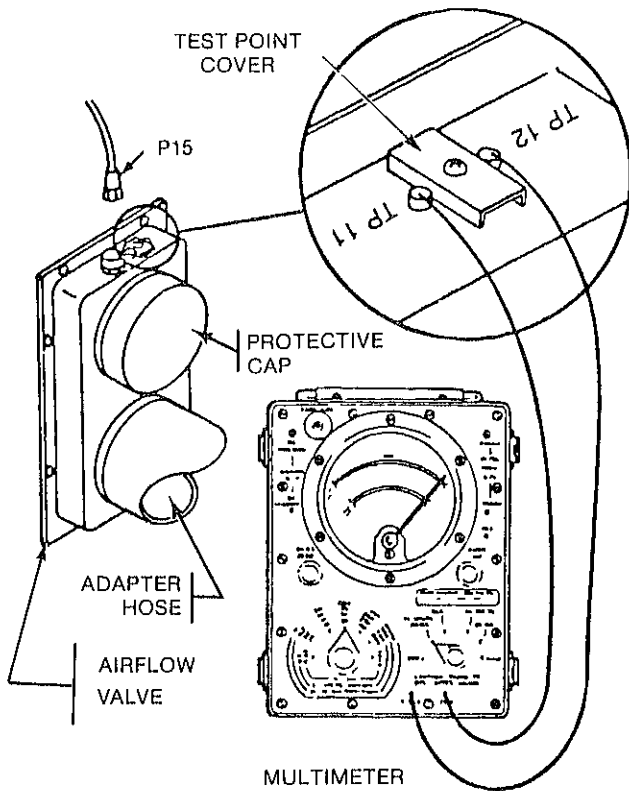


LEGEND

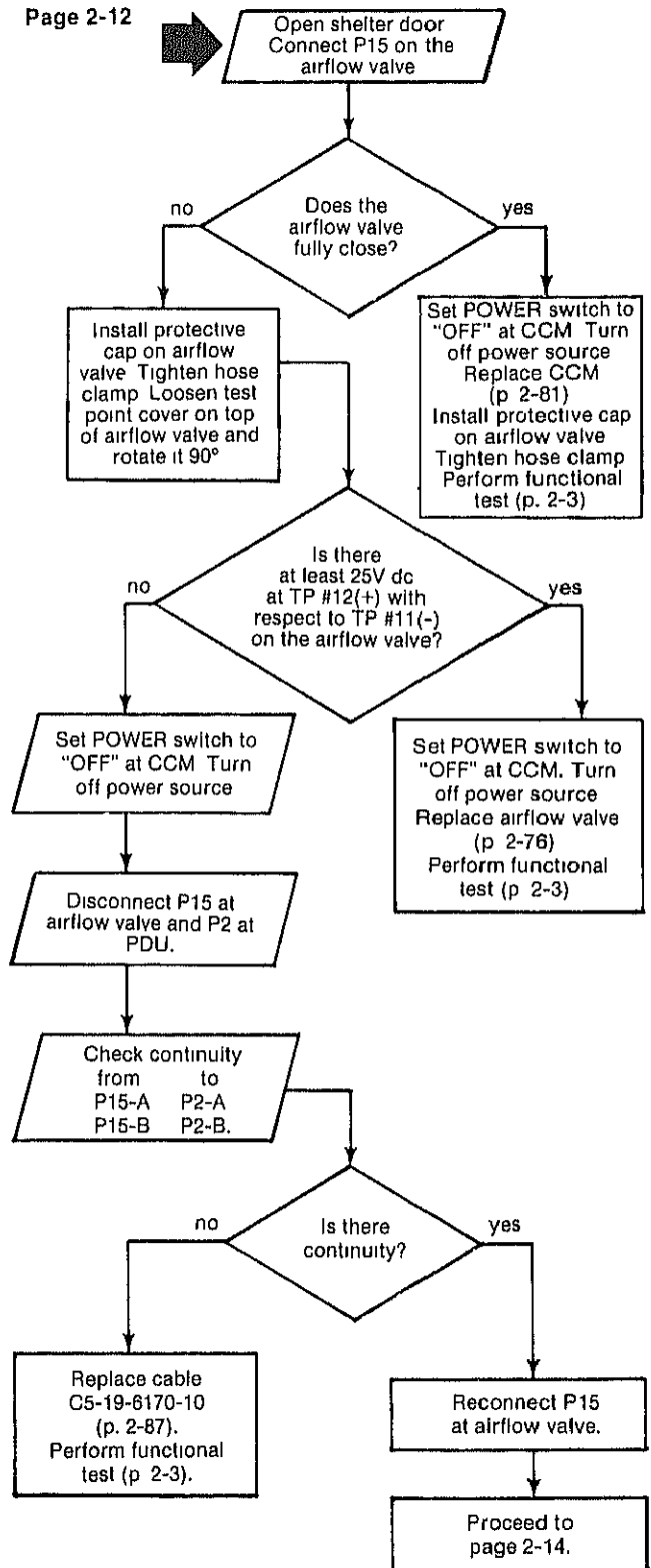
CCM = Compartment Control Module
FU = Filter Unit



Page 2-12



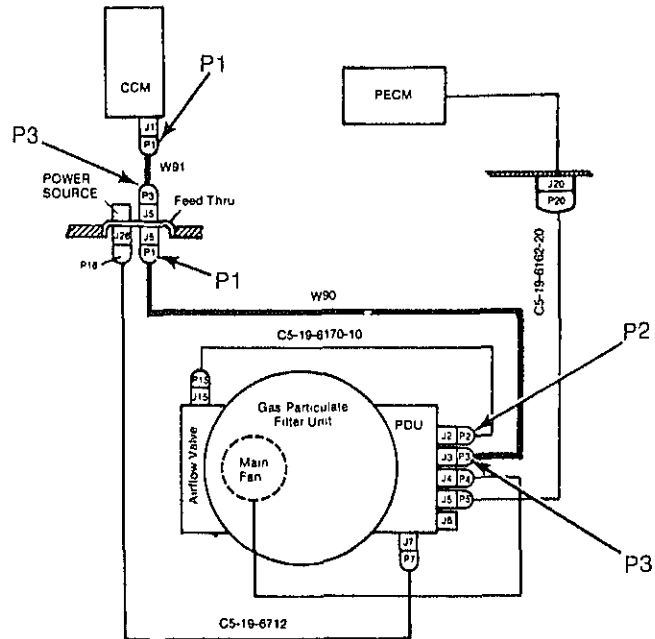
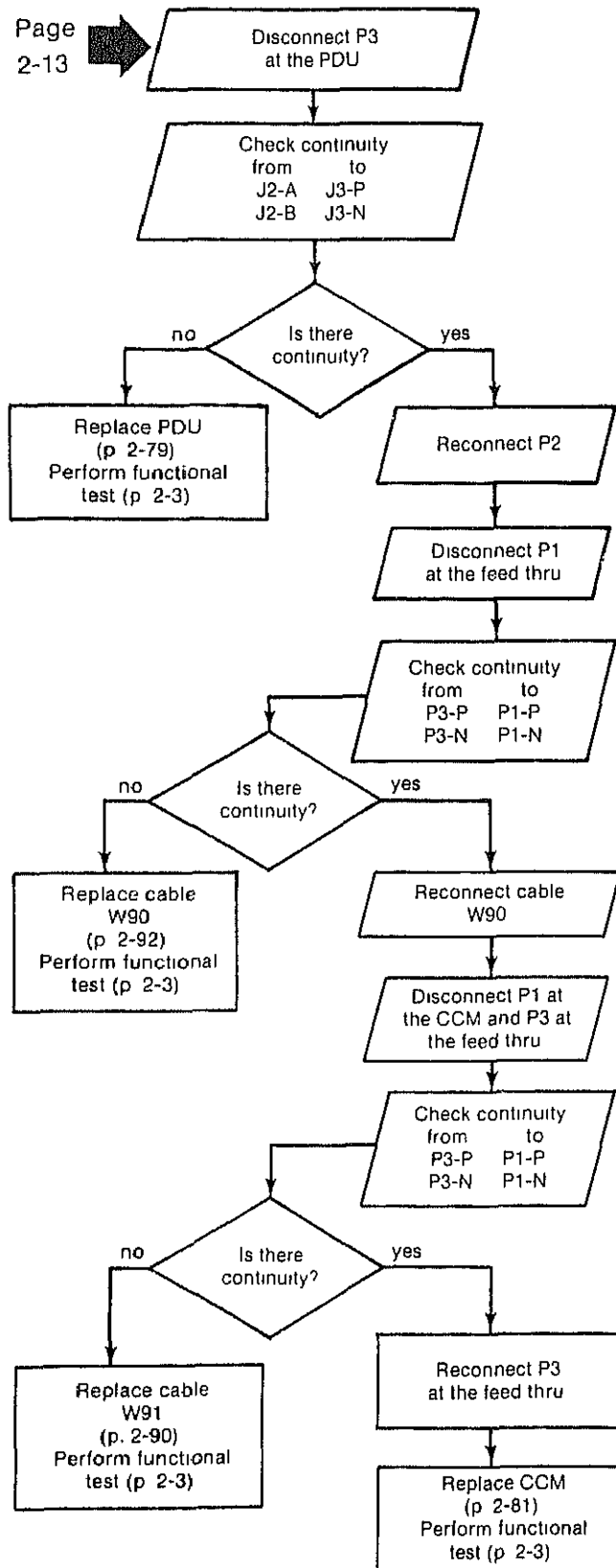
SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM

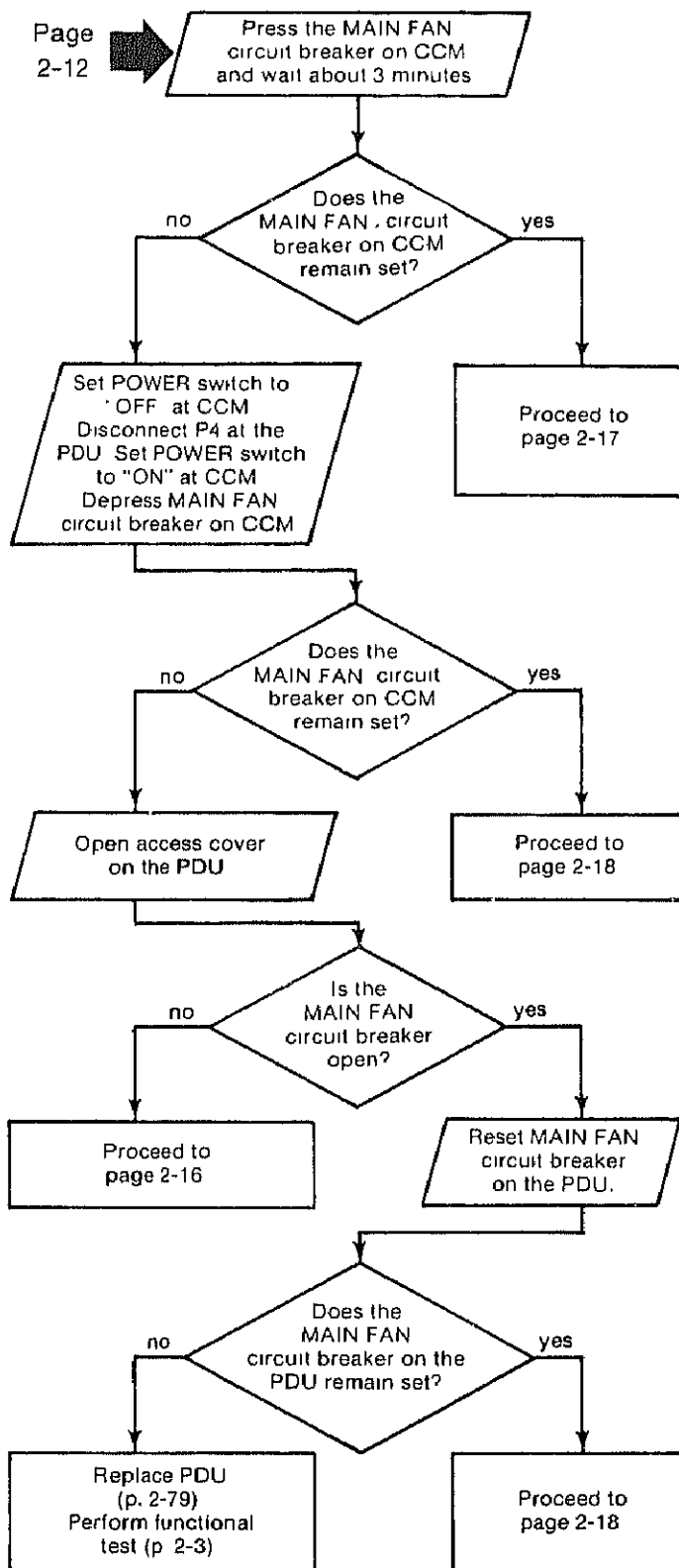
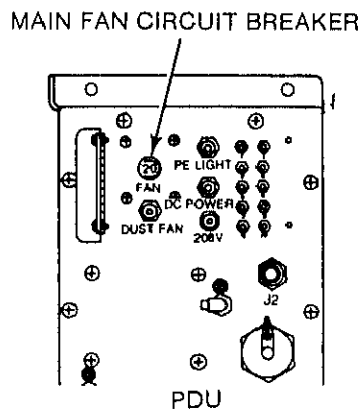
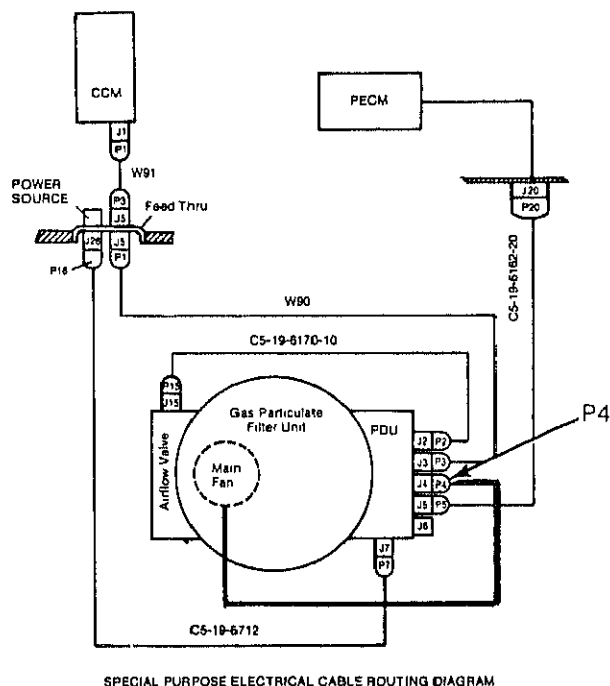
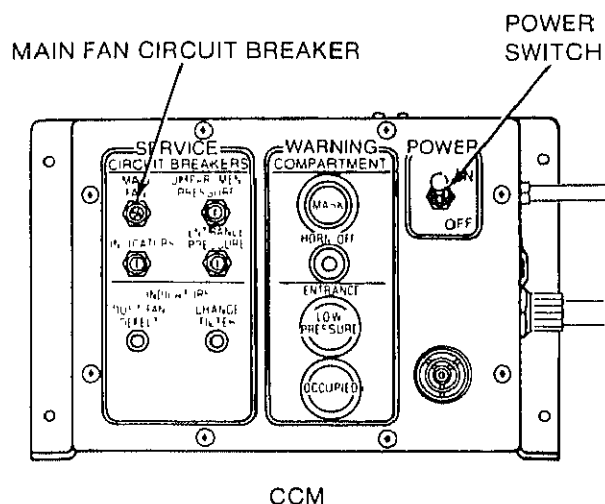


CCM = Compartment Control Module
PDU = Power Distribution Unit
TP = Test Point

1. MASK LIGHT FLASHING AND/OR WARNING HORN SOUNDING (CONT)

Page
2-13



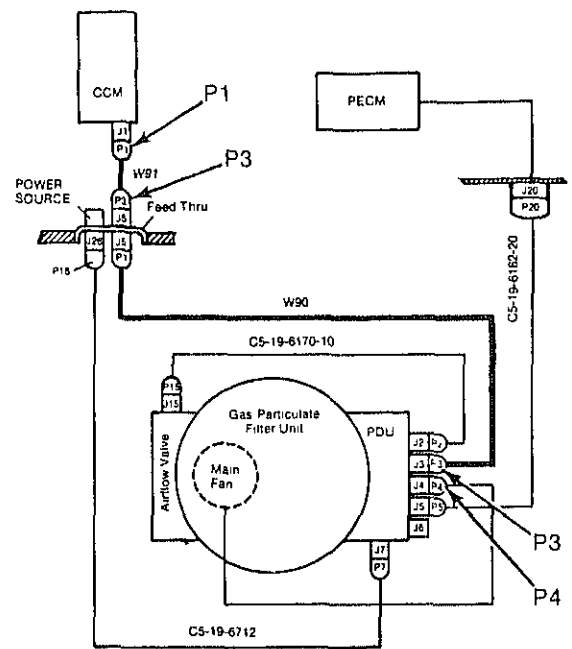
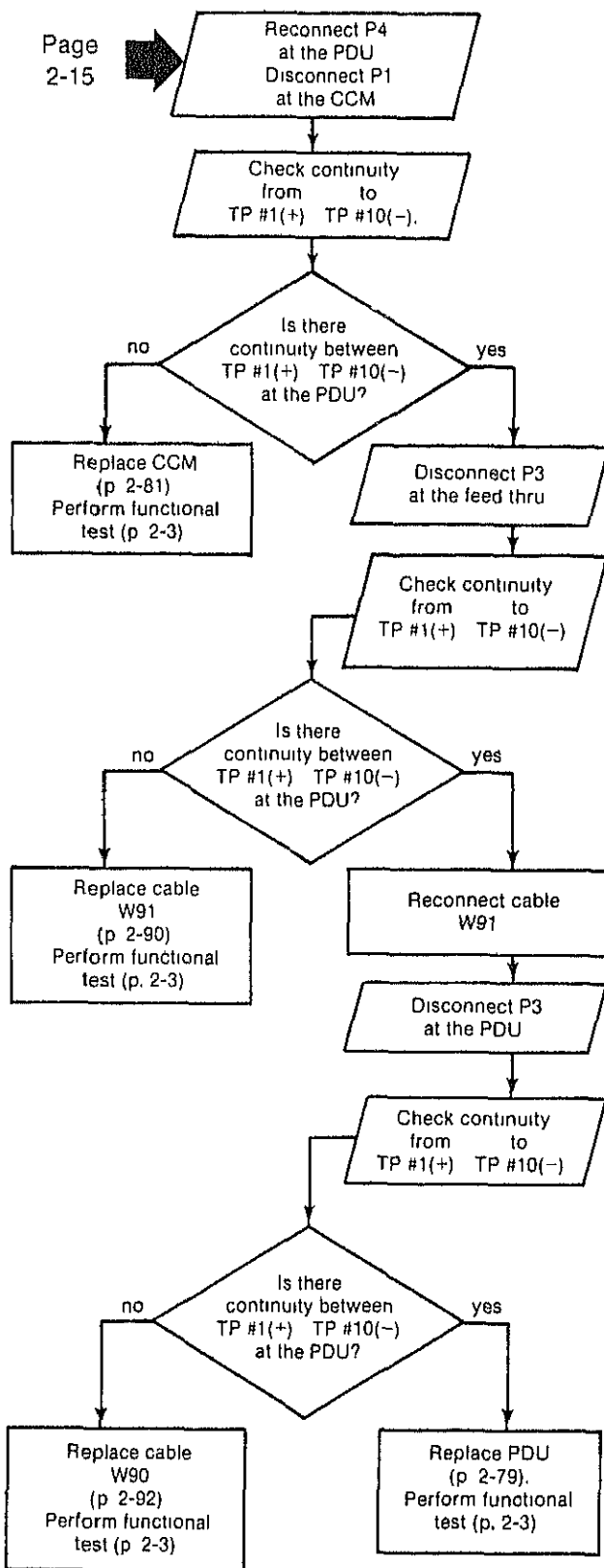


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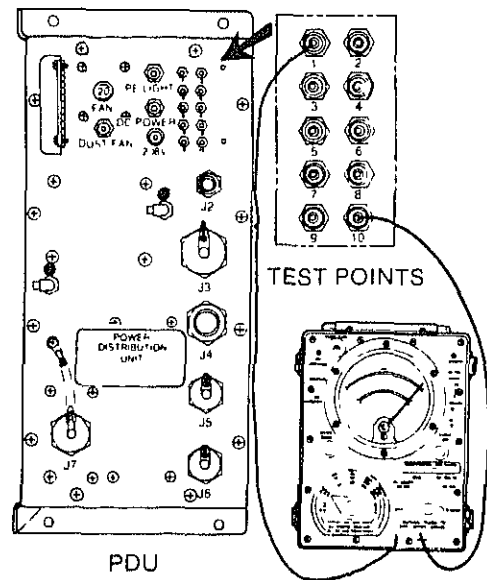
CCM = Compartment Control Module
PDU = Power Distribution Unit

1. MASK LIGHT FLASHING AND/OR WARNING HORN SOUNDING (CONT)

Page
2-15



SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



MULTIMETER

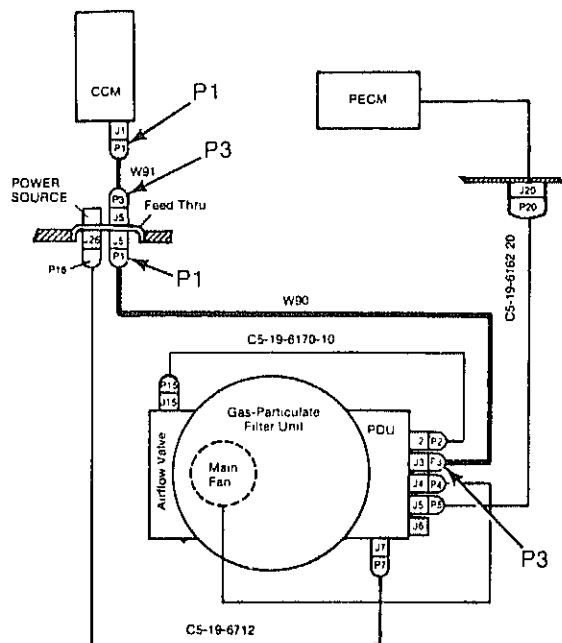
LEGEND

CCM = Compartment Control Module

PDU = Power Distribution Unit

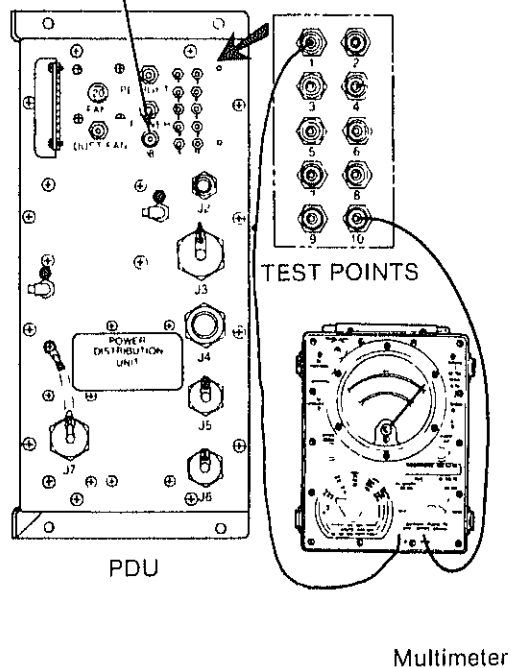
TP = Test Point

Page 2-12 or 2-15



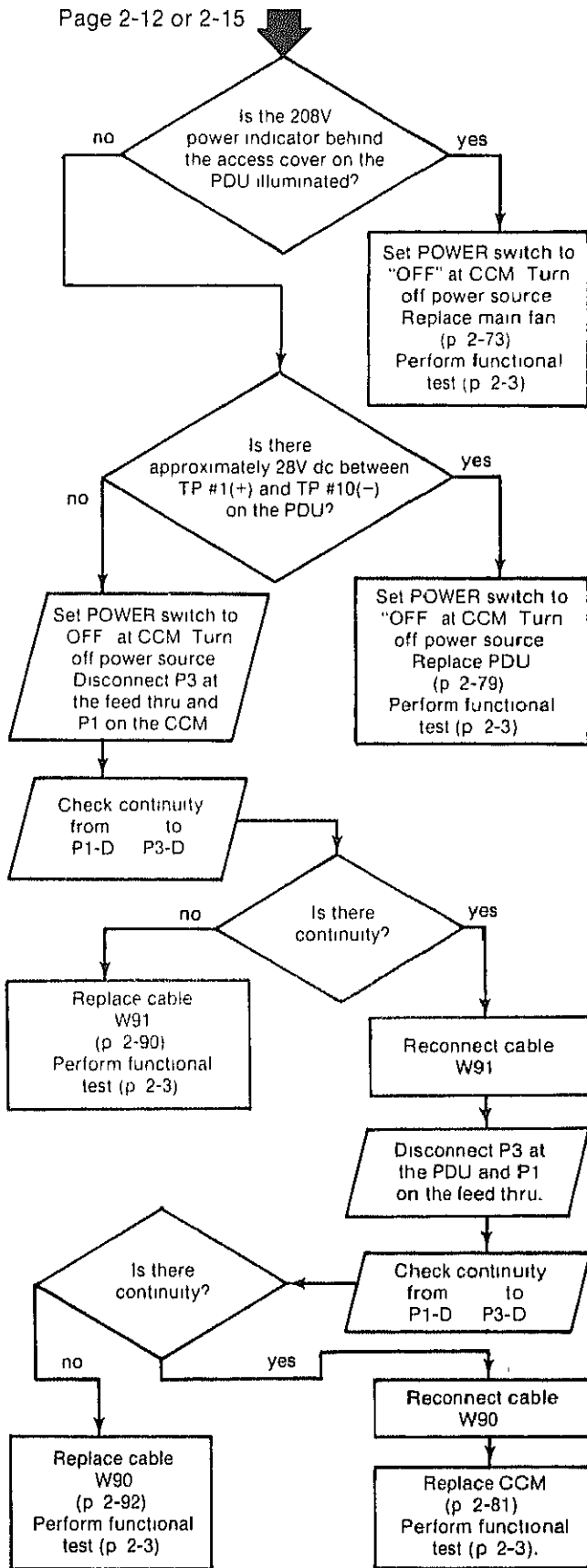
SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM

208V
POWER INDICATOR



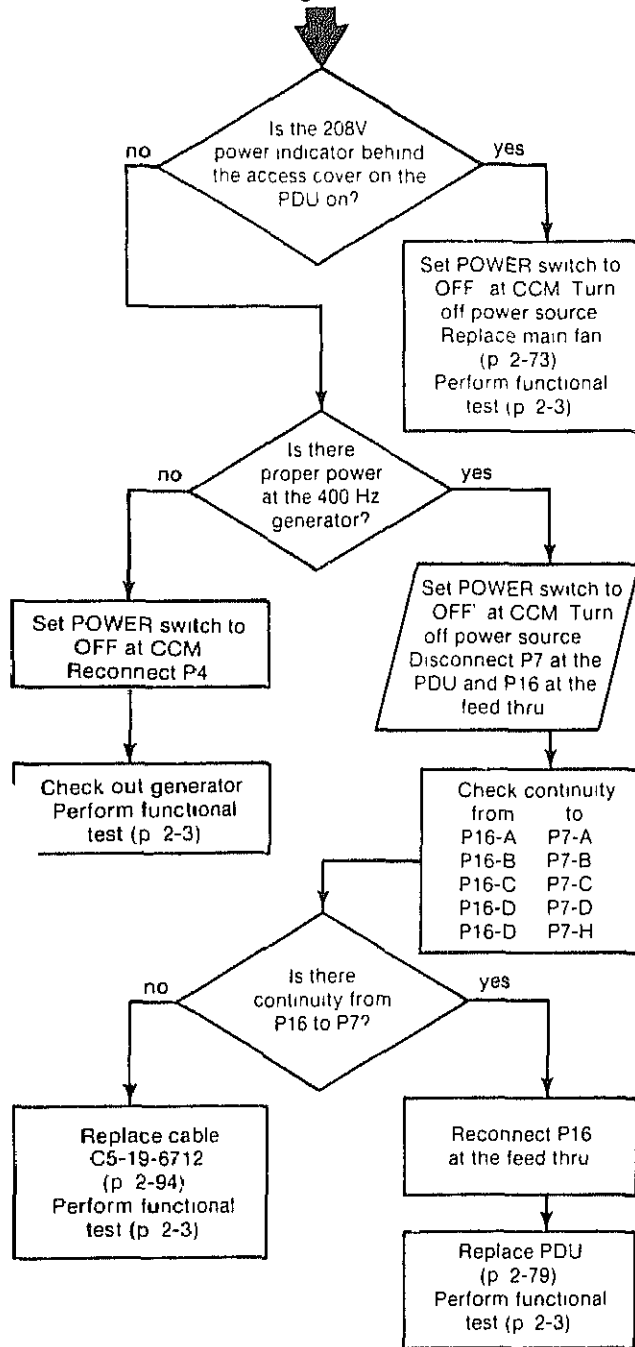
LEGEND

CCM = Compartment Control Module
PDU = Power Distribution Unit
TP = Test Point



1. MASK LIGHT FLASHING AND/OR WARNING HORN SOUNDING (CONT).

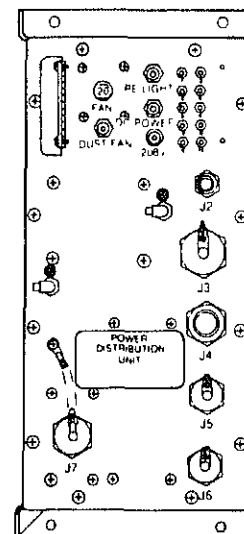
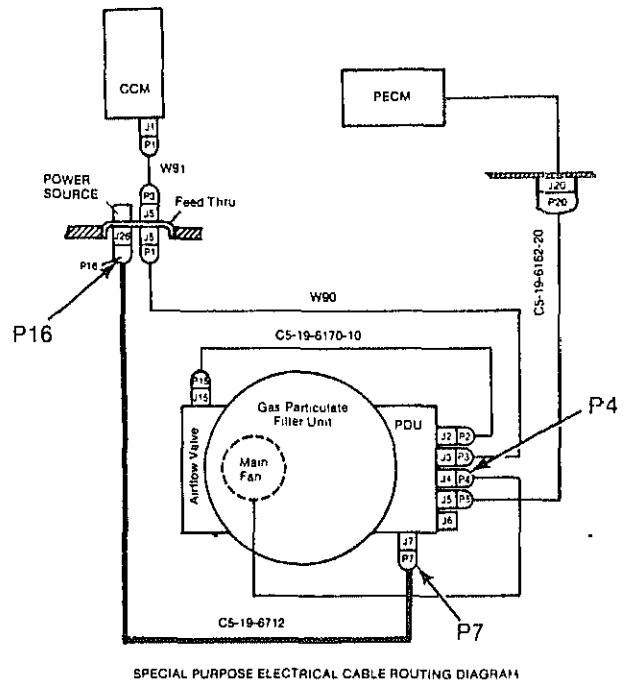
Page 2-15



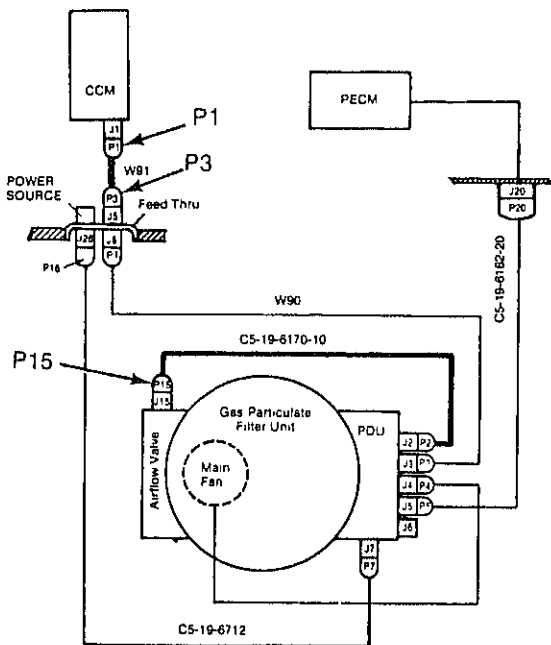
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CCM = Compartment Control Module

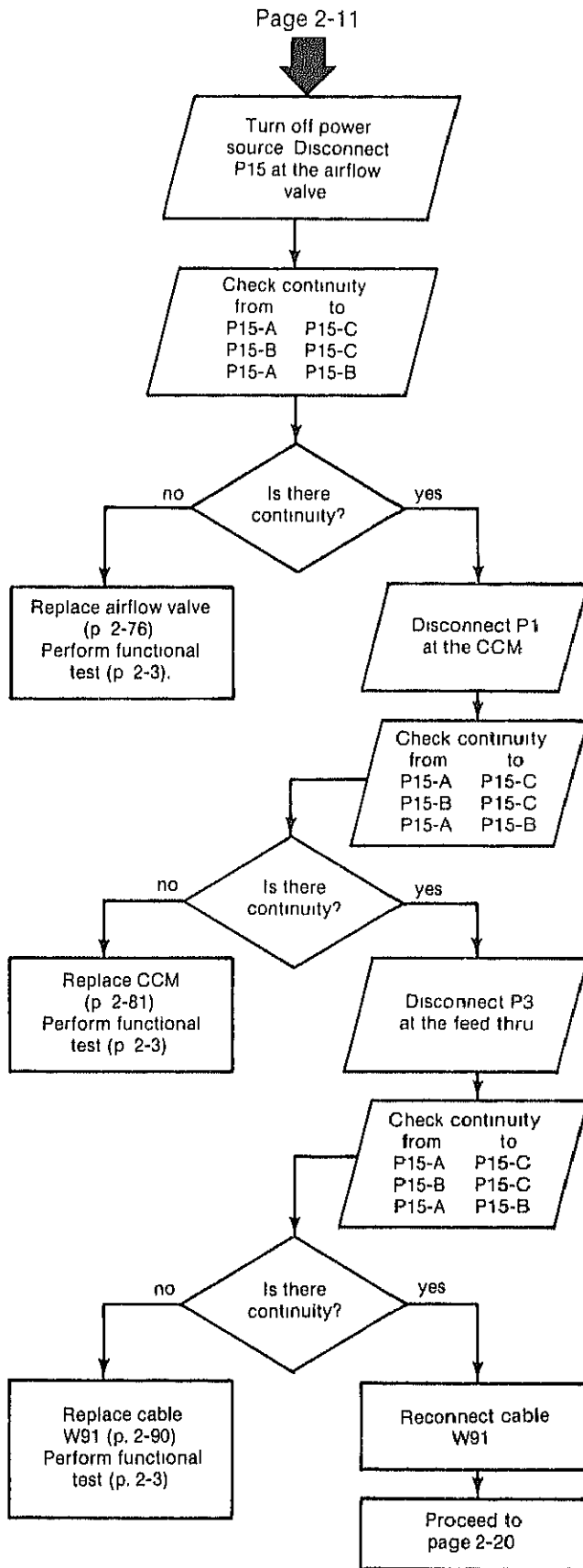
PDU = Power Distribution Unit



Page 2-11



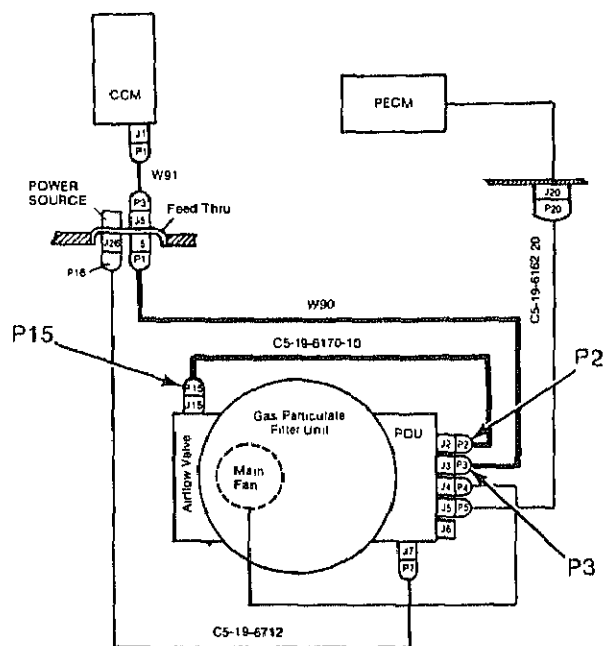
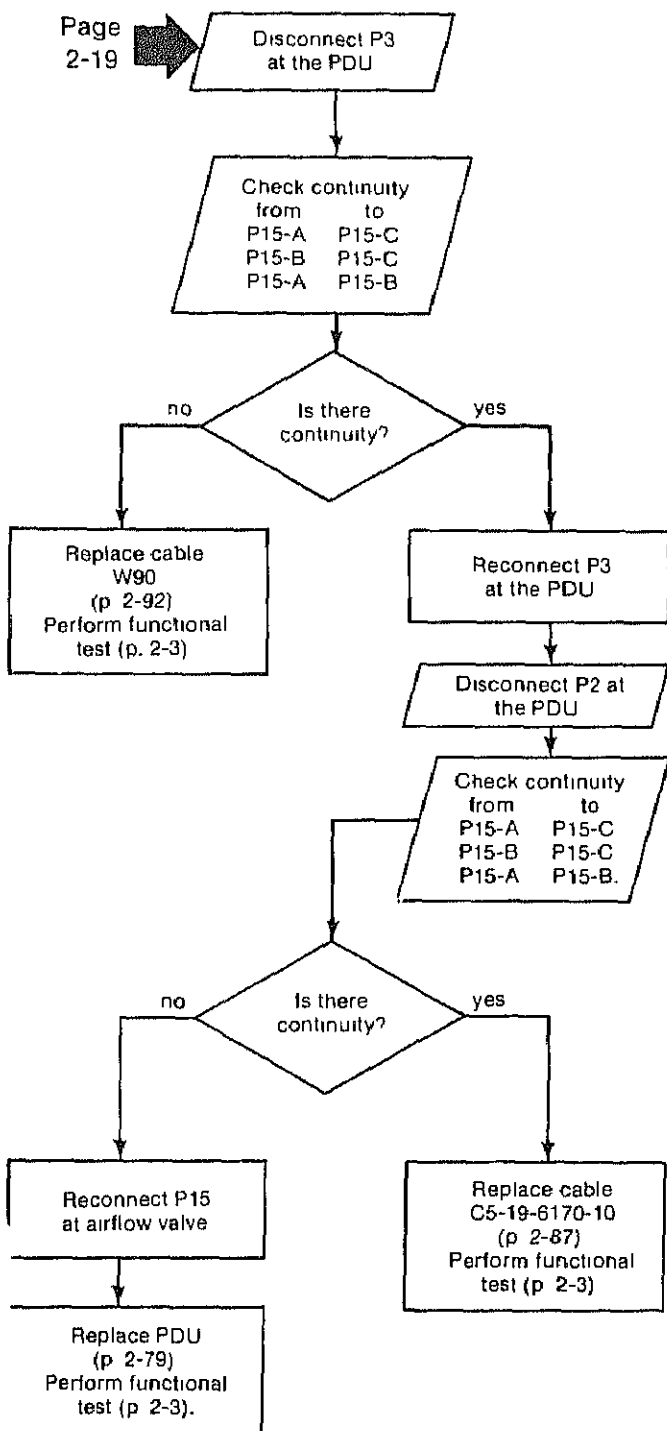
SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



LEGEND

CCM = Compartment Control Module

1. MASK LIGHT FLASHING AND/OR WARNING HORN SOUNDING (CONT).

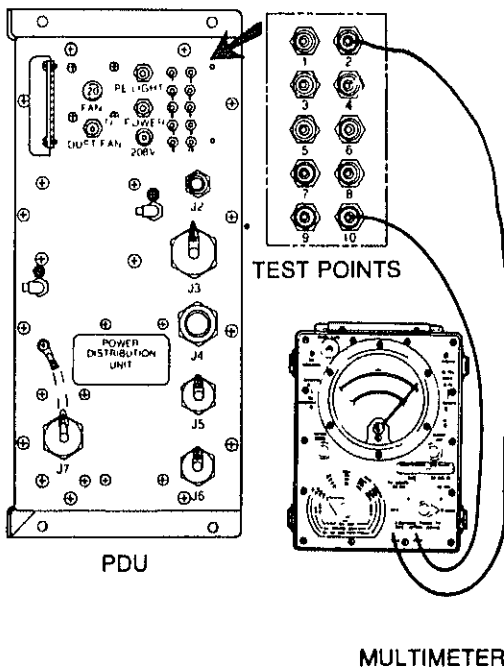
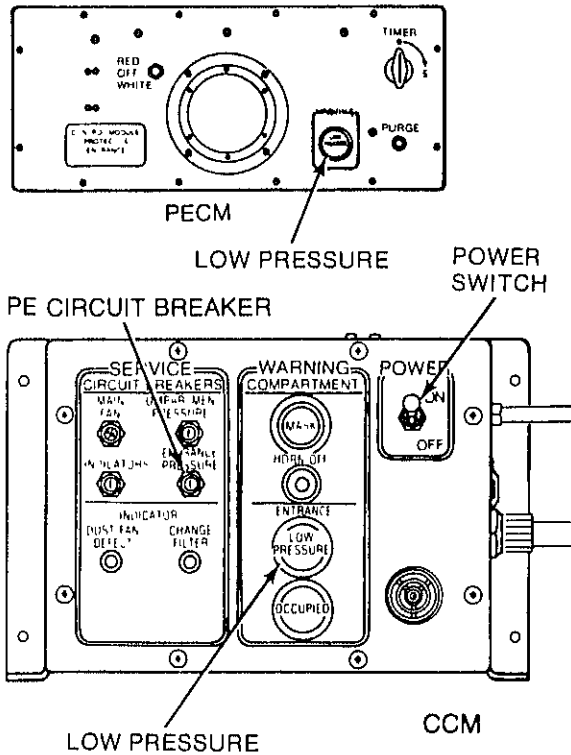


SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM

LEGEND

PDU = Power Distribution Unit

2 PROTECTIVE ENTRANCE LOW PRESSURE LIGHTS ON.



LEGEND

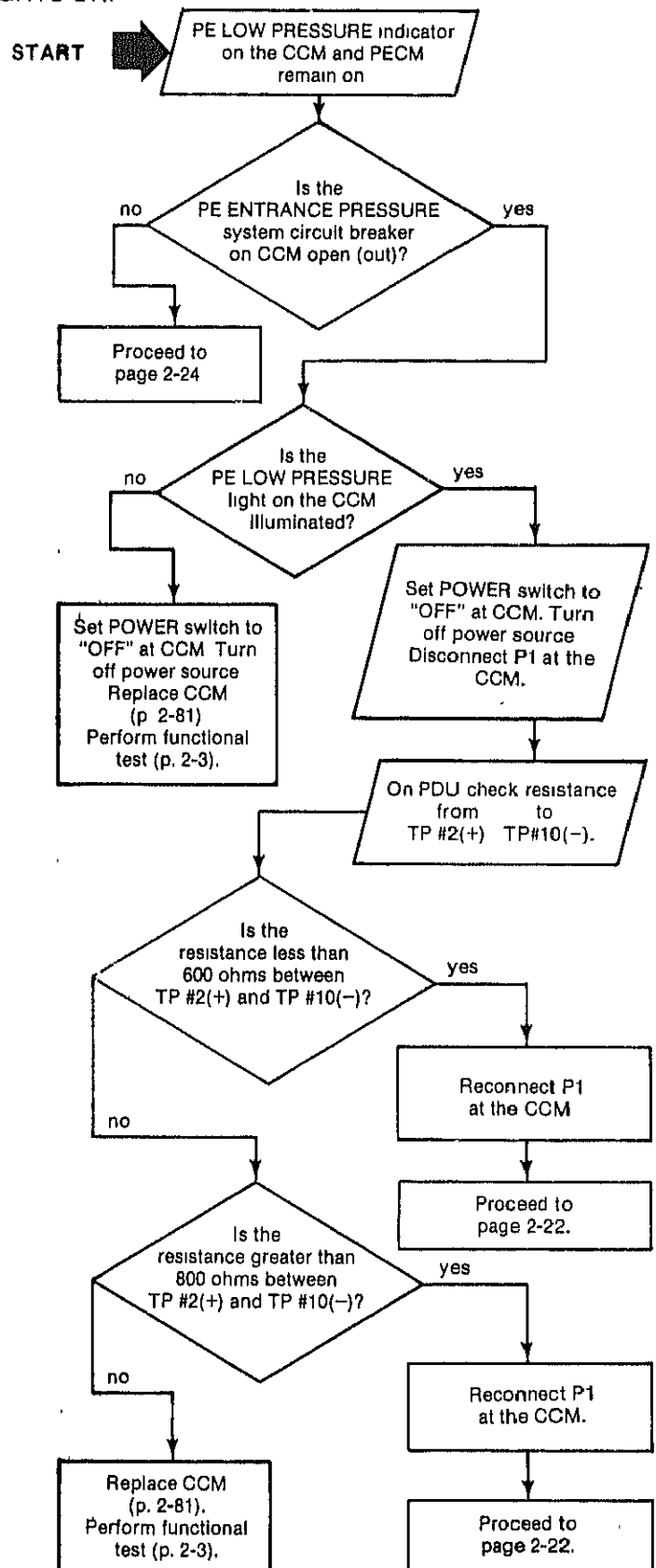
CCM = Compartment Control Module

PDU = Power Distribution Unit

PE = Protective Entrance

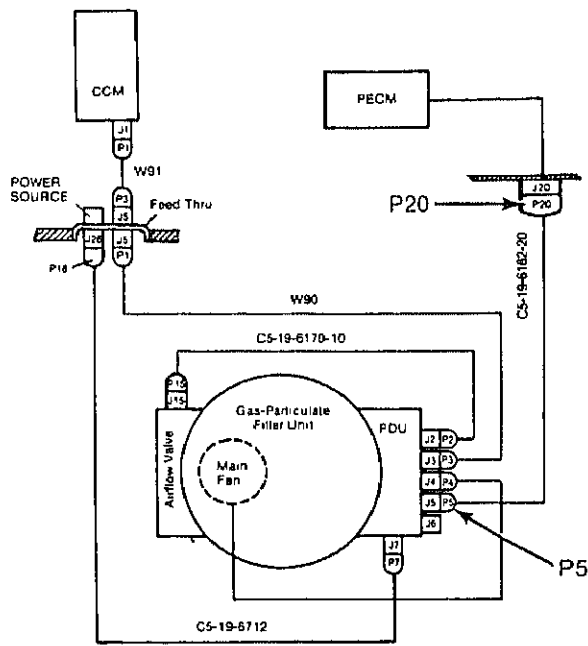
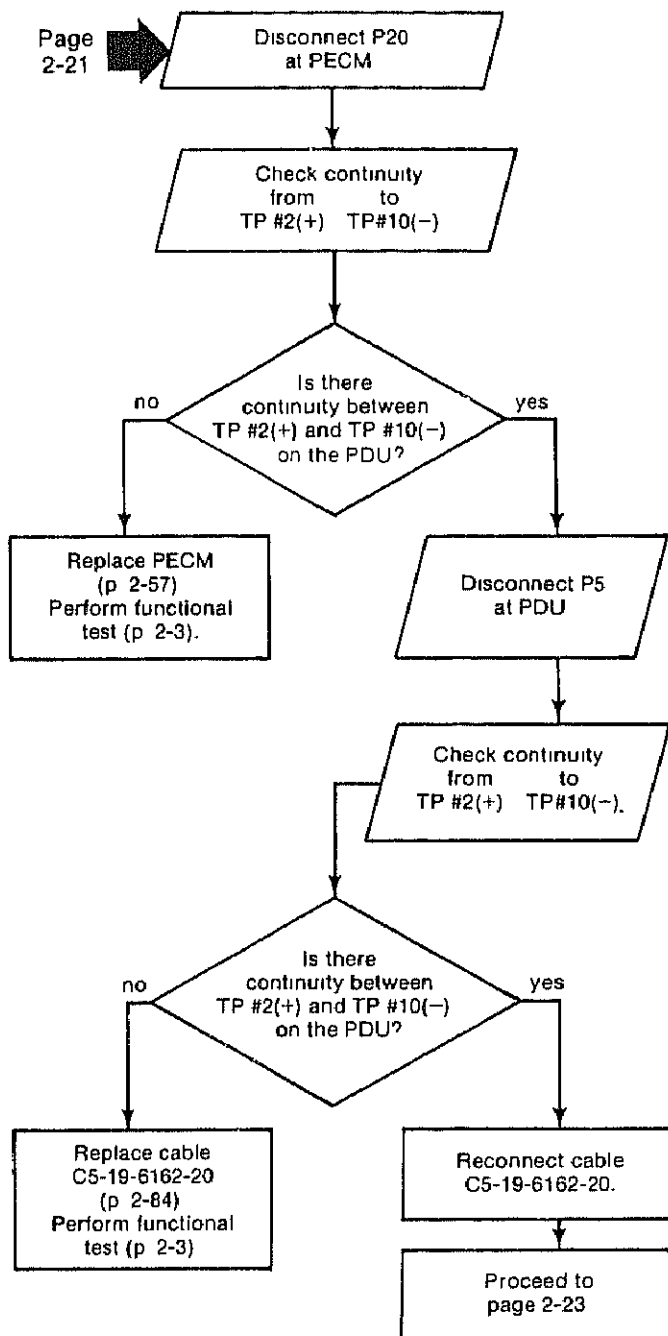
PECM = Protective Entrance Control Module

TP = Test Point

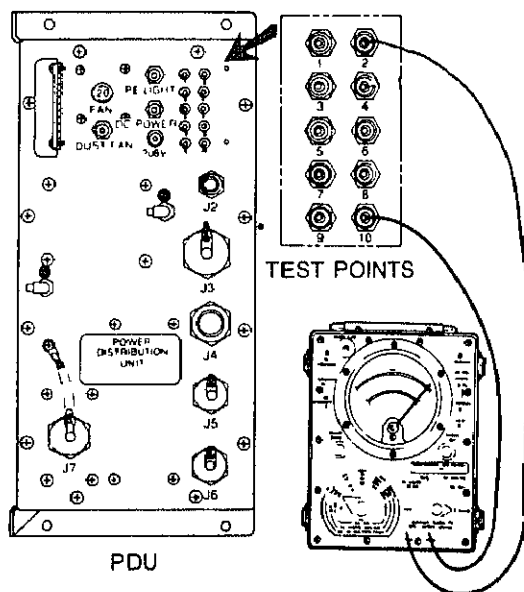


2. PROTECTIVE ENTRANCE LOW PRESSURE LIGHTS ON (CONT).

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2-21



SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



LEGEND

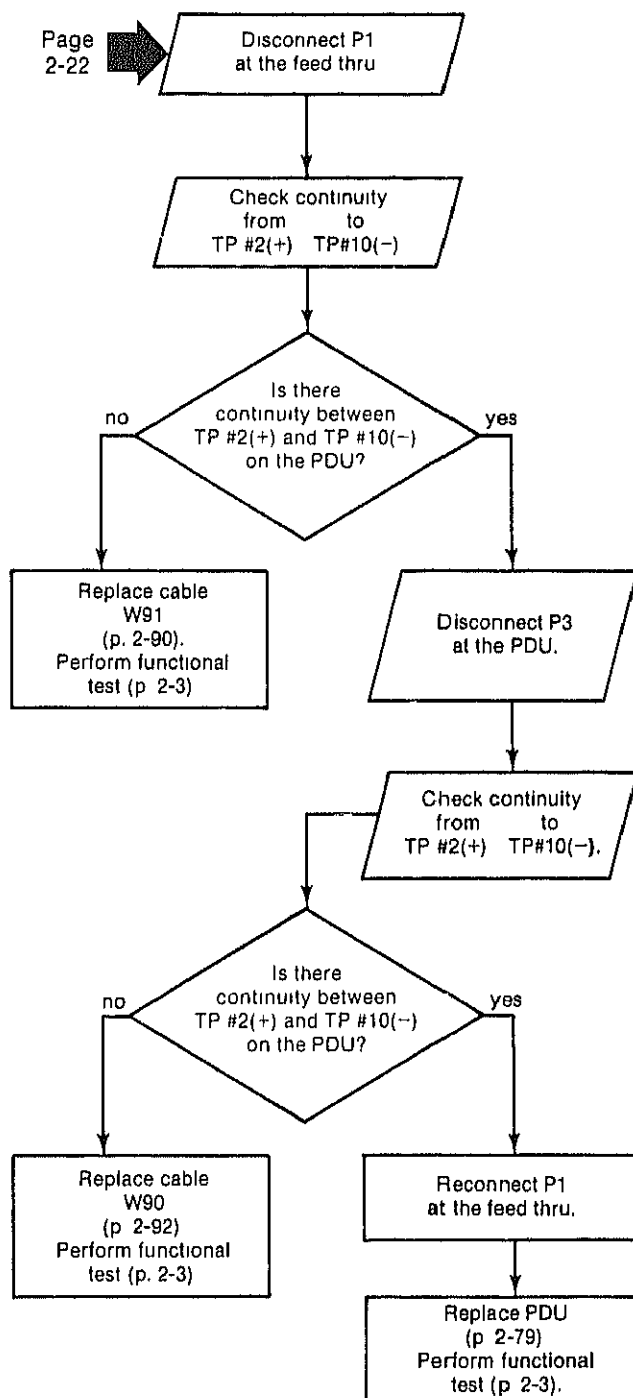
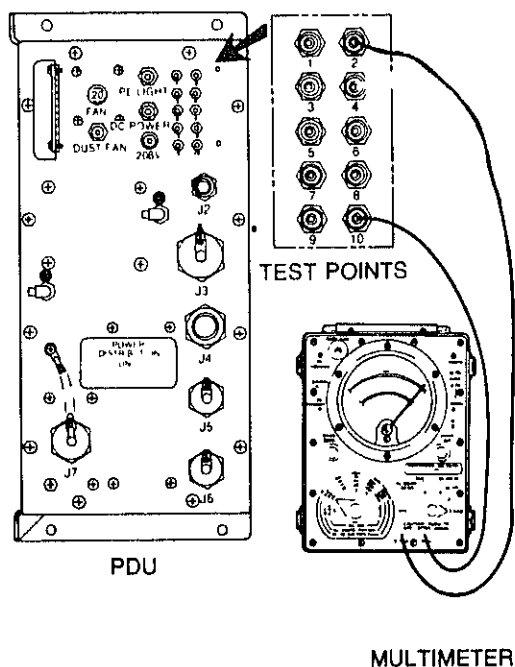
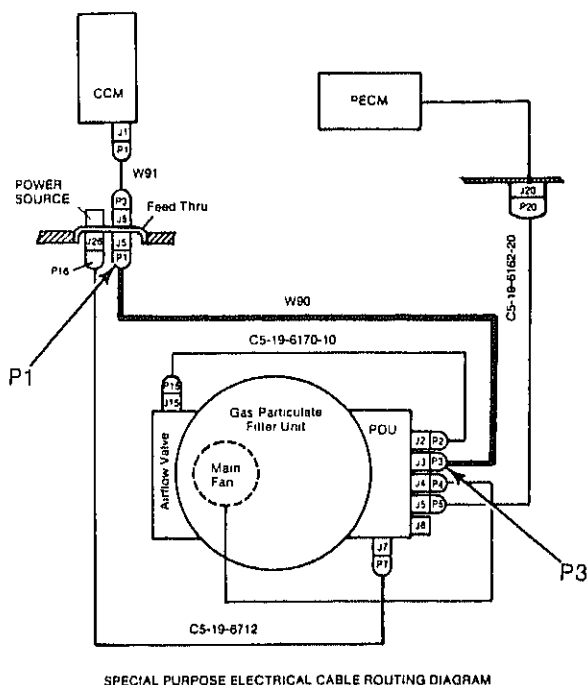
CCM = Compartment Control Module

PDU = Power Distribution Unit

TP = Test Point

MULTIMETER

Page
2-22

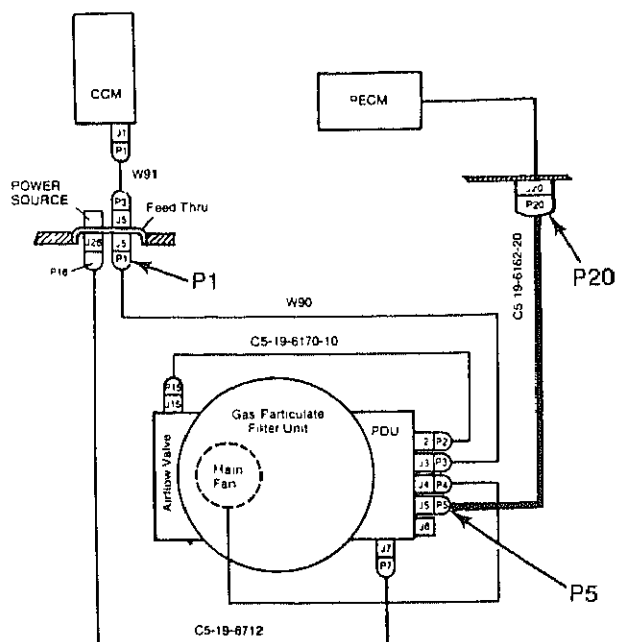
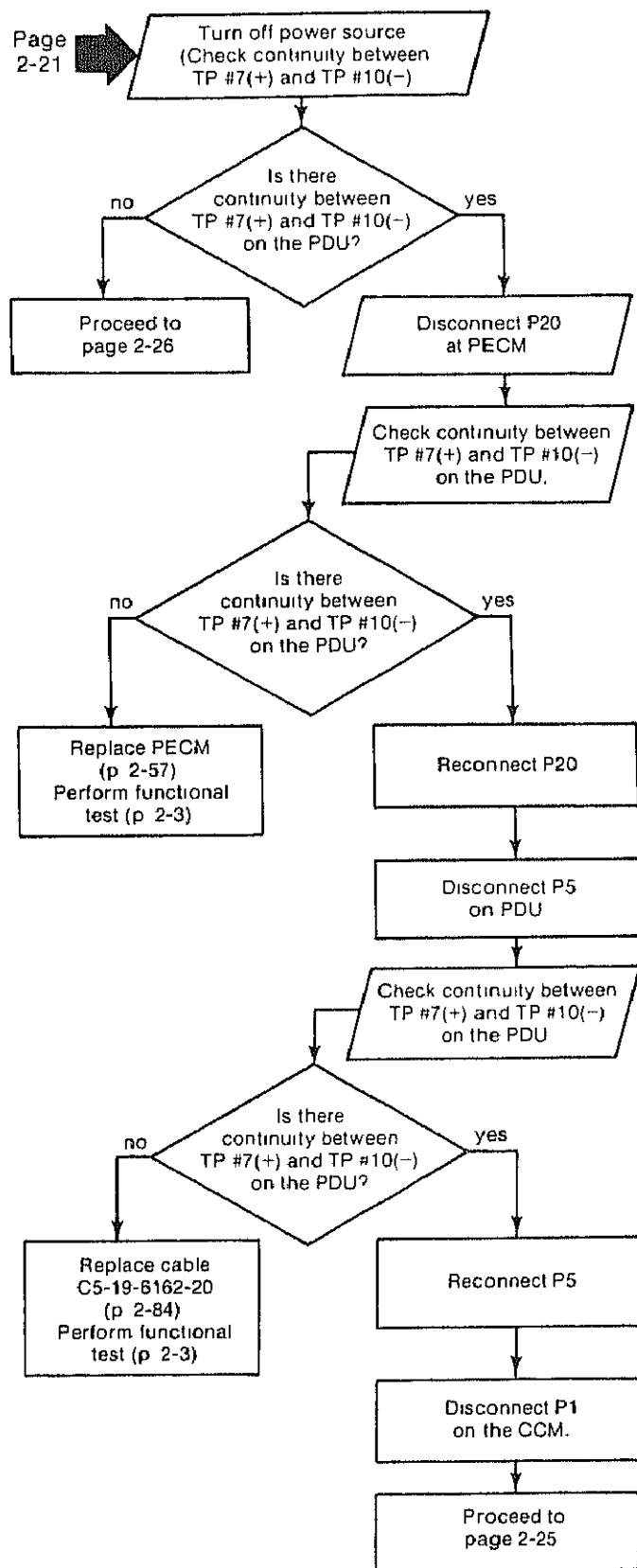


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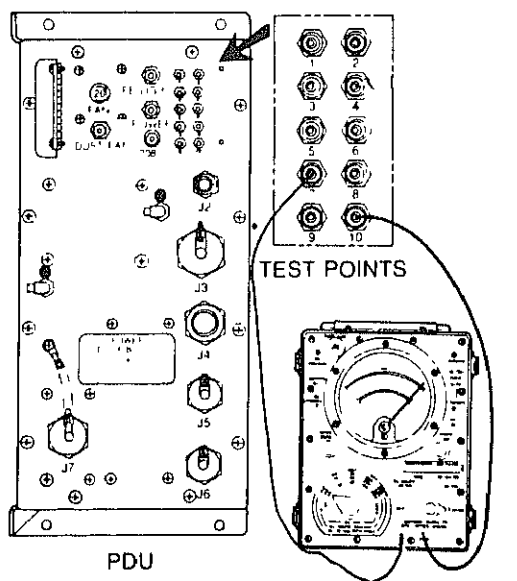
CCM = Compartment Control Module
PDU = Power Distribution Unit
TP = Test Point

2. PROTECTIVE ENTRANCE LOW PRESSURE LIGHTS ON (CONT)

Page
2-21



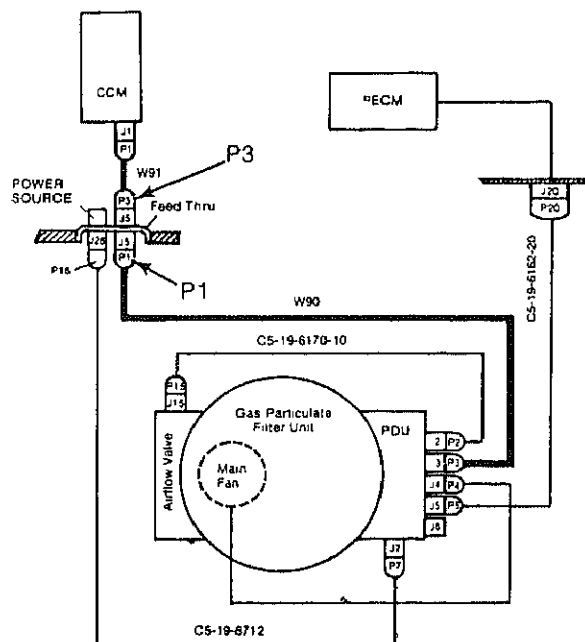
SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



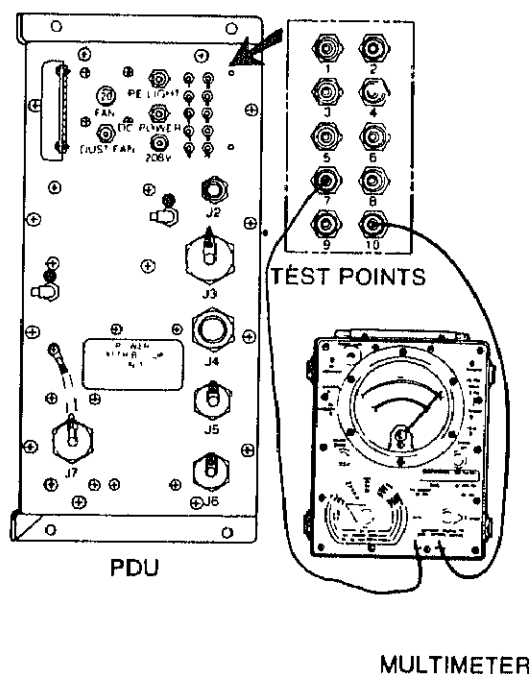
MULTIMETER

LEGEND

CCM = Compartment Control Module
PDU = Power Distribution Unit



SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



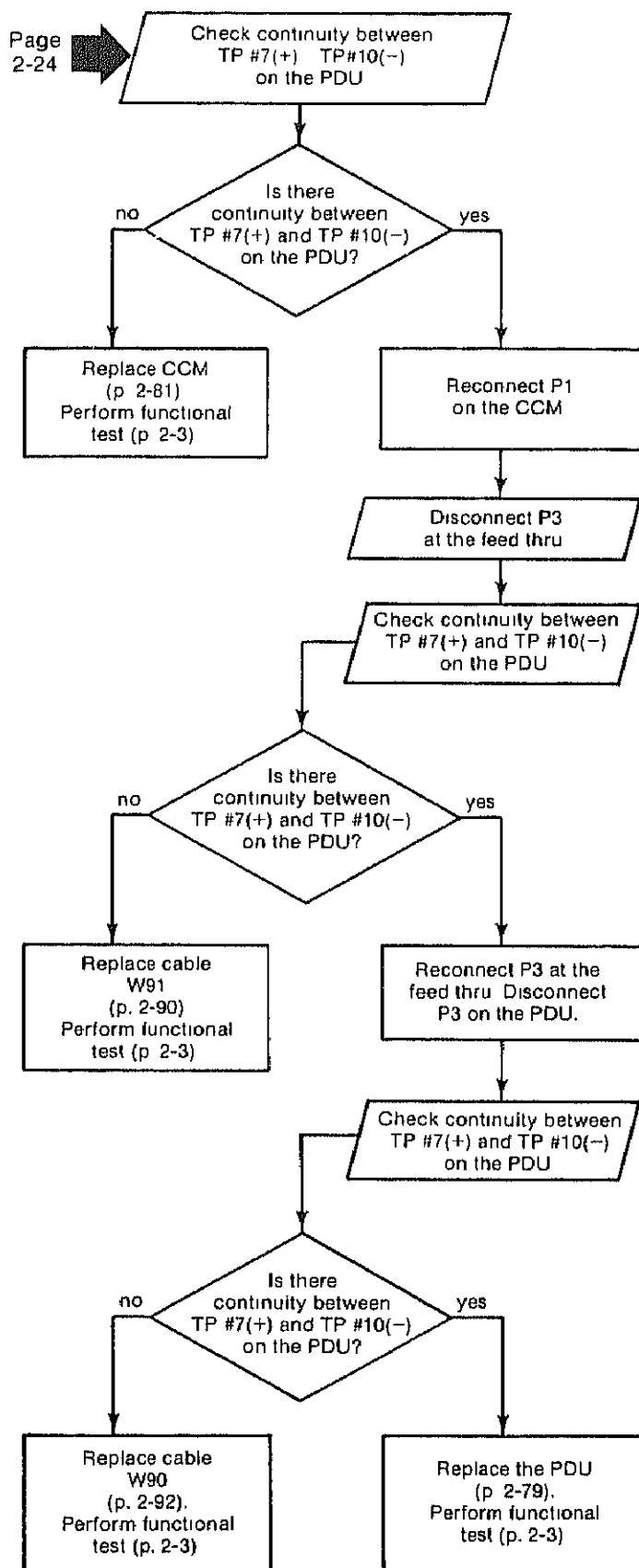
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CCM = Compartment Control Module

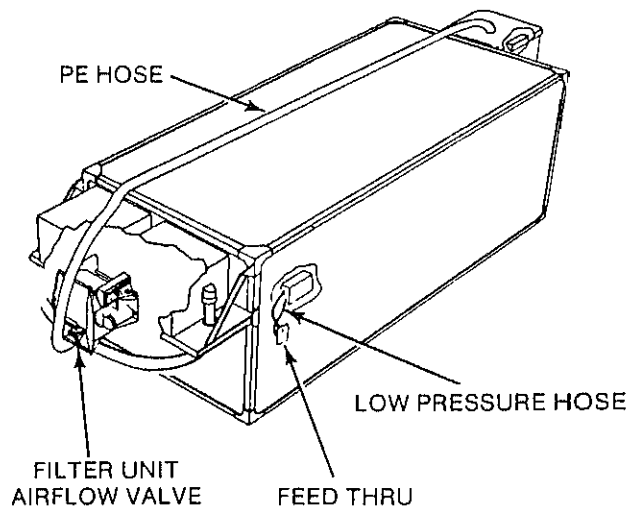
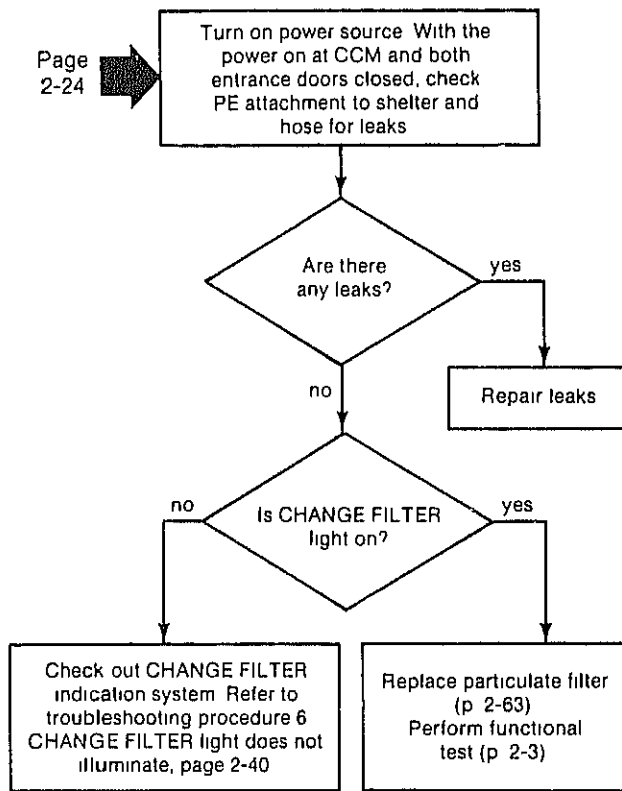
PDU = Power Distribution Unit

TP = Test Point

Page
2-24



2. PROTECTIVE ENTRANCE LOW PRESSURE LIGHTS ON (CONT).

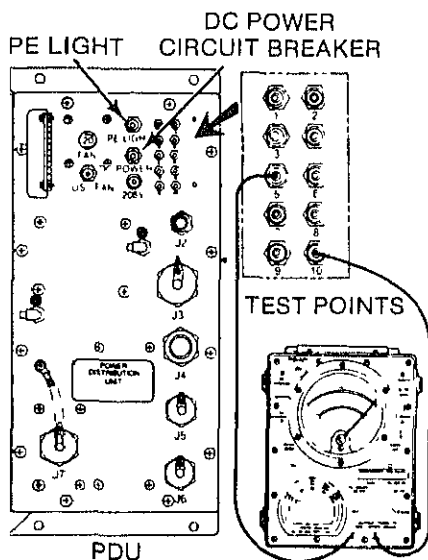
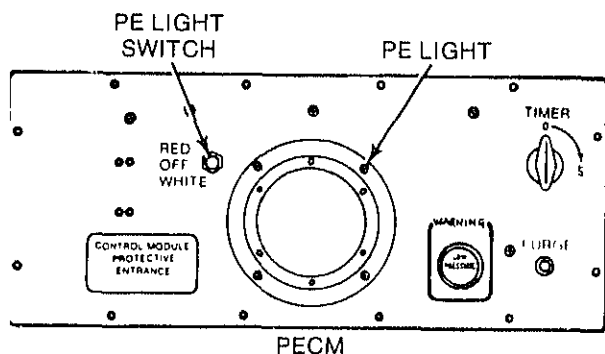
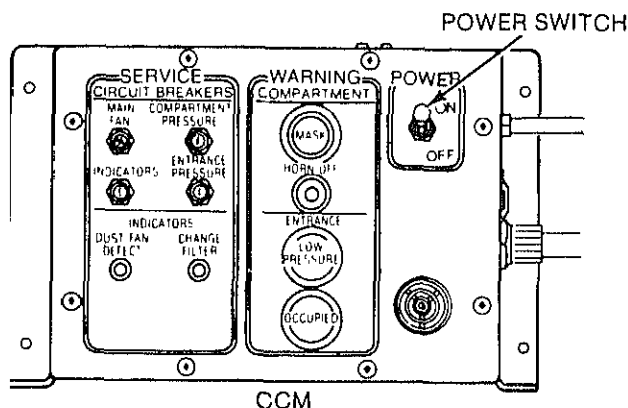


LEGEND

CCM = Compartment Control Module

PE = Protective Entrance

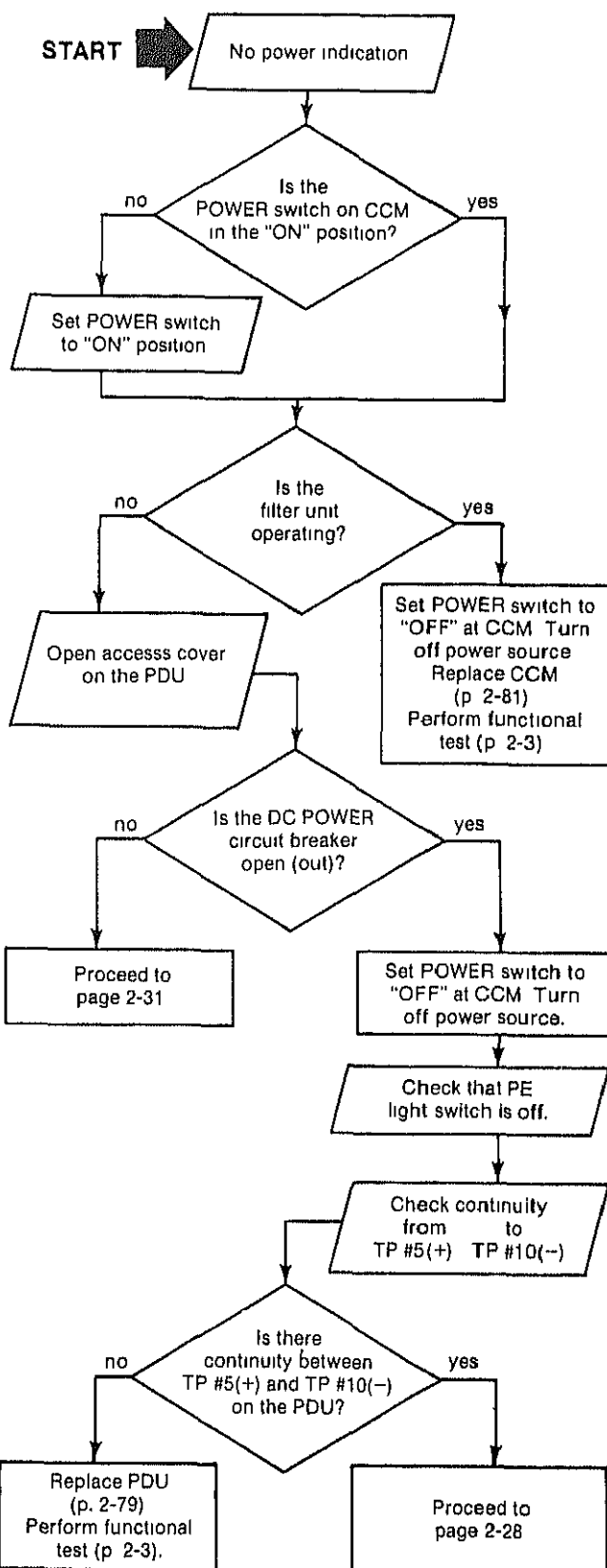
3 NO POWER INDICATION (ALL INDICATOR LIGHTS DO NOT ILLUMINATE WHEN PRESSED TO TEST)



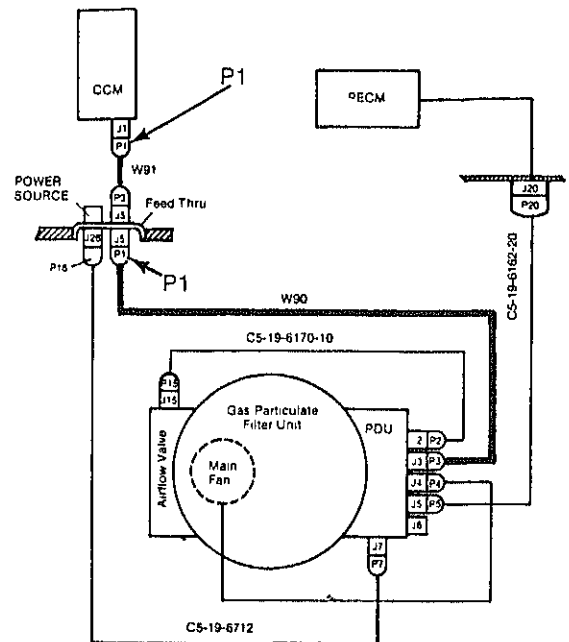
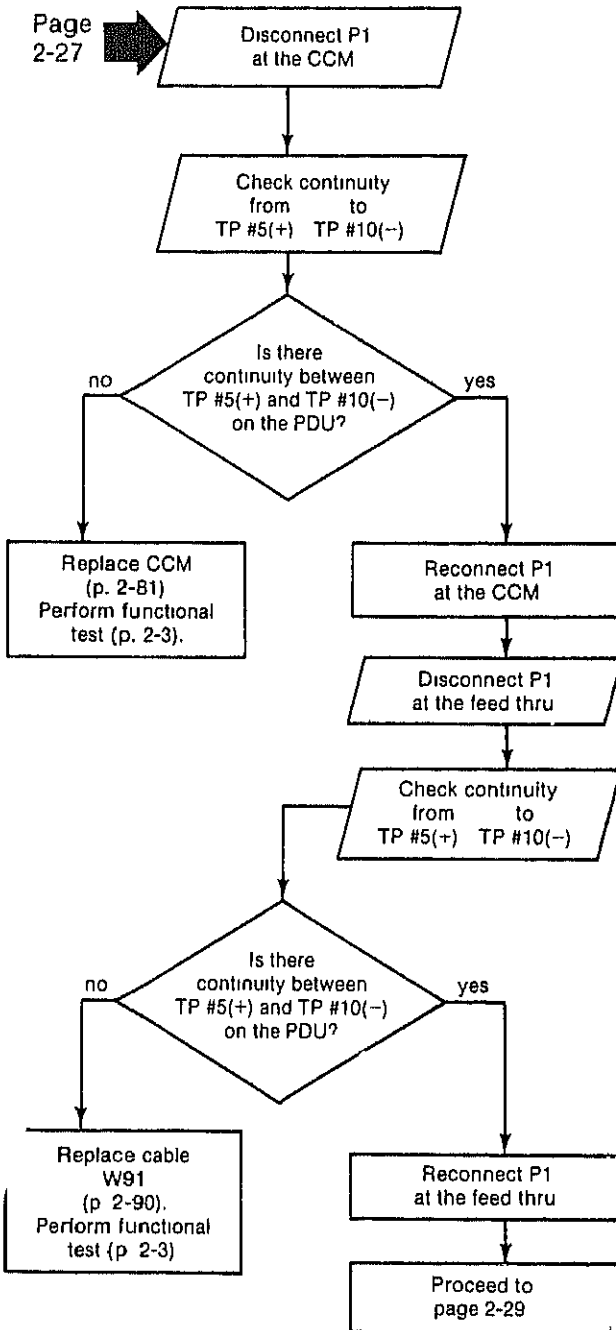
MULTIMETER

LEGEND

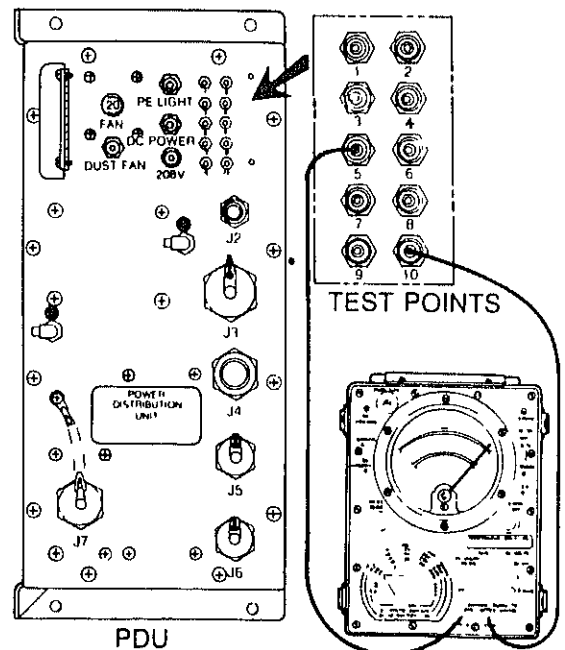
CCM = Compartment Control Module
PDU = Power Distribution Unit
PE = Protective Entrance
PECM = Protective Entrance Control Module
P = Test Point



3. NO POWER INDICATION (ALL INDICATOR LIGHTS DO NOT ILLUMINATE WHEN PRESSED TO TEST) (CONT).



SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



PDU

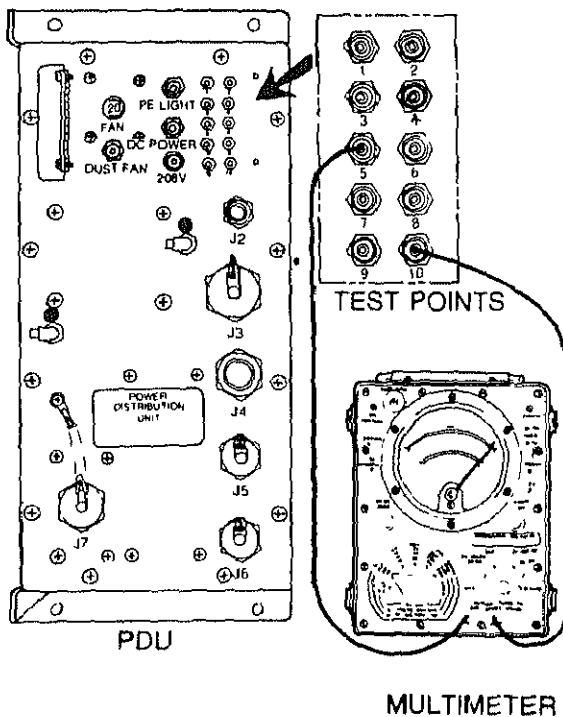
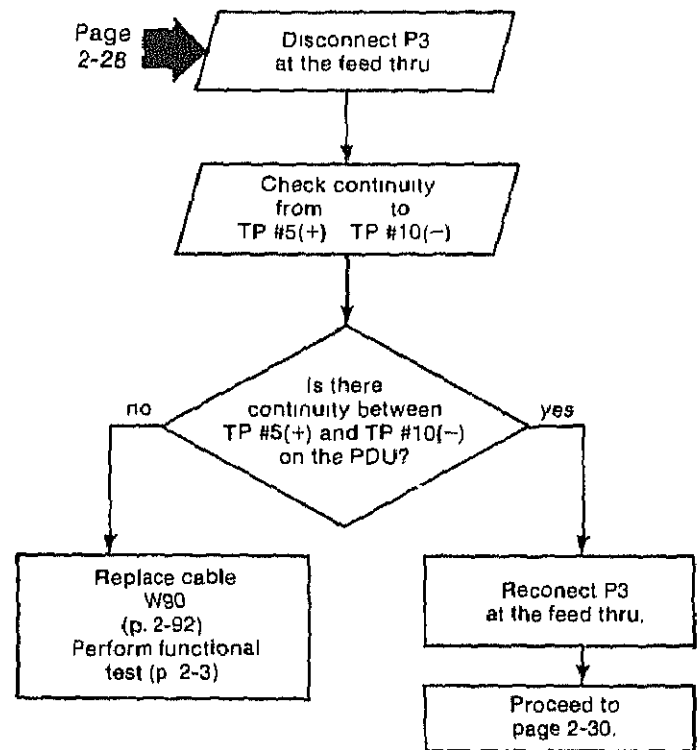
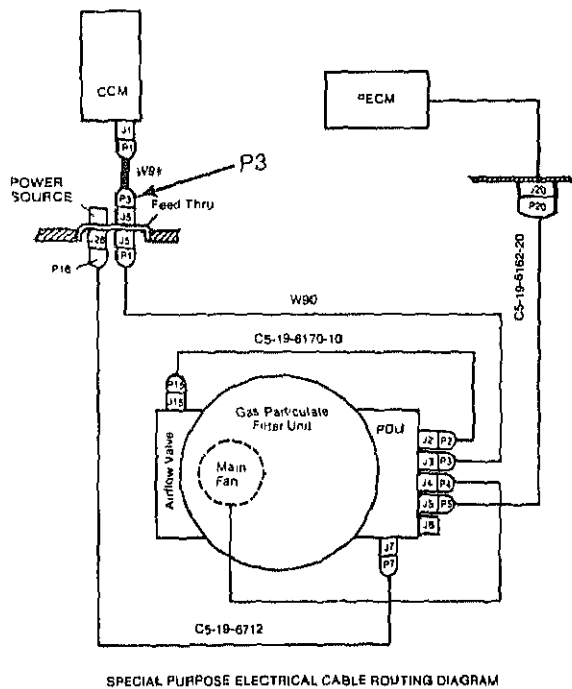
MULTIMETER

EGEND

CM = Compartment Control Module

DU = Power Distribution Unit

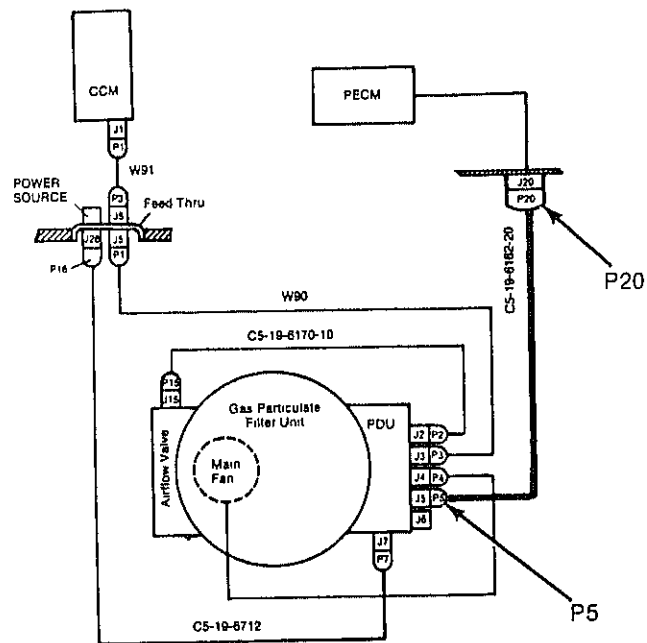
P = Test Point



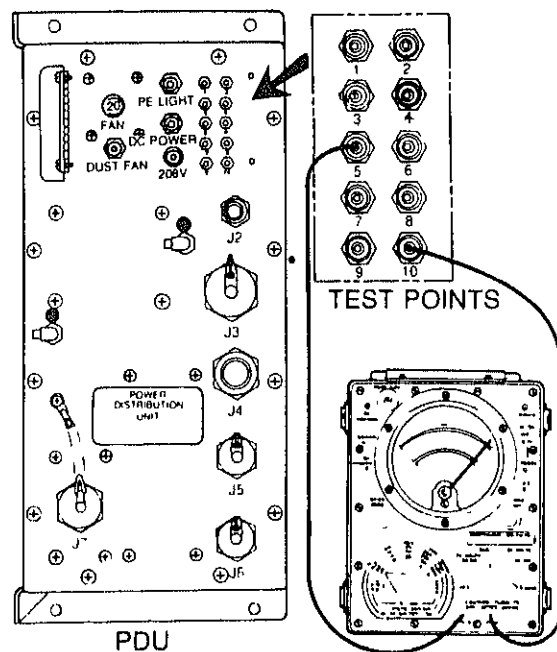
LEGEND

PDU = Power Distribution Unit

TP = Test Point



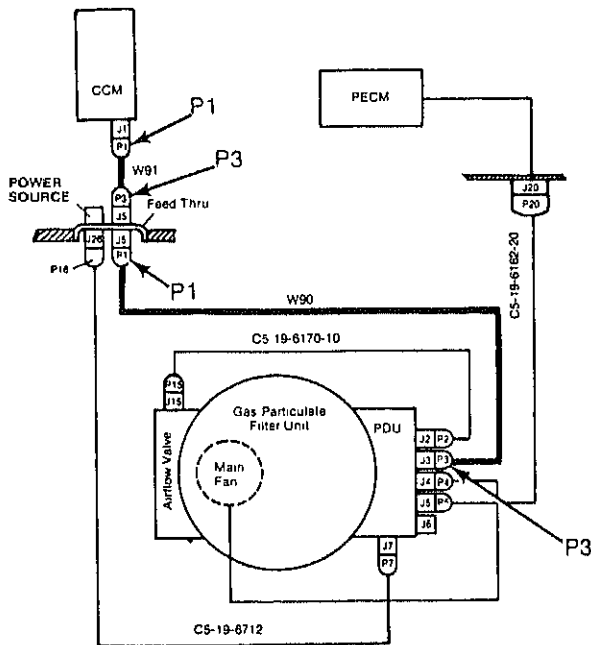
SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



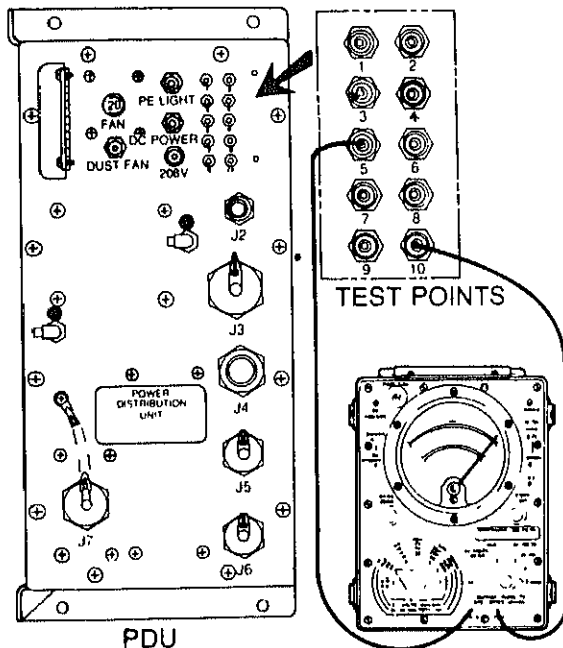
MULTIMETER

PDU = Power Distribution Unit
PECM = Protective Entrance Control Module
TP = Test Point

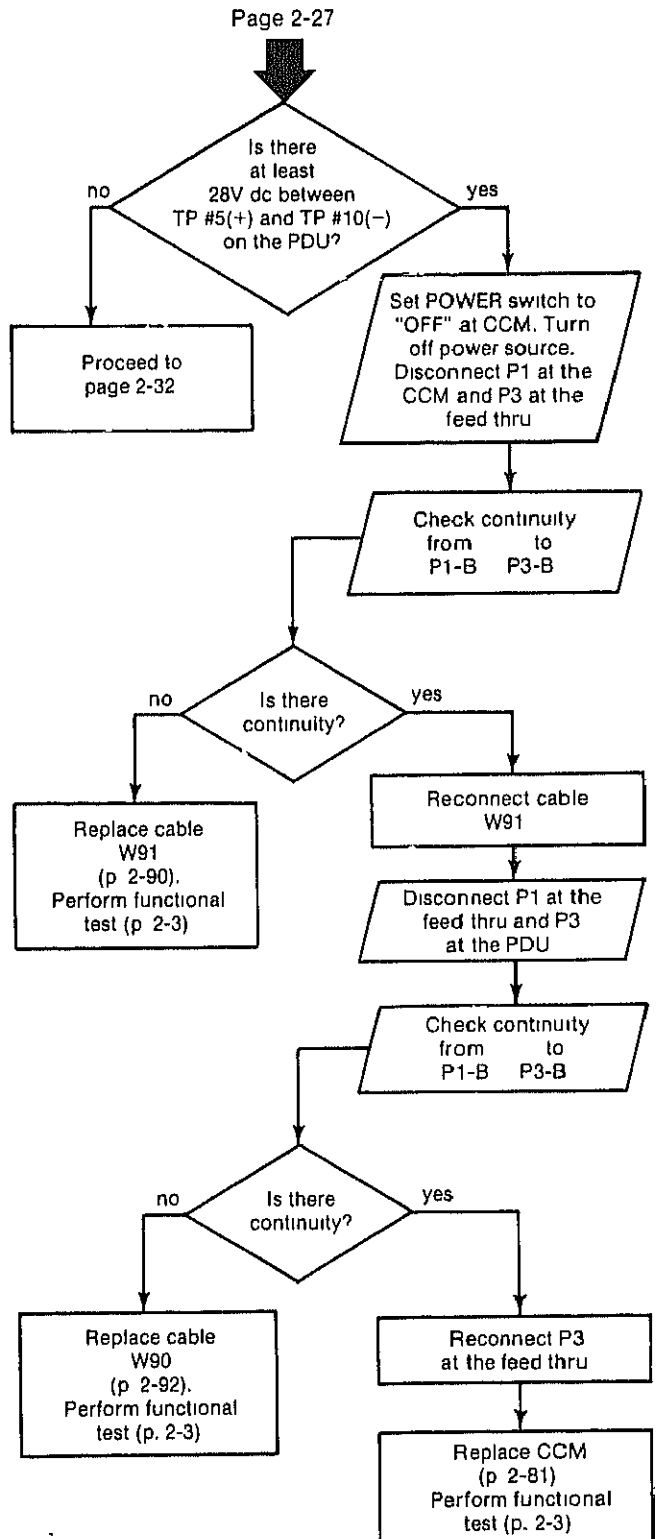
Page 2-27



SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



MULTIMETER



LEGEND

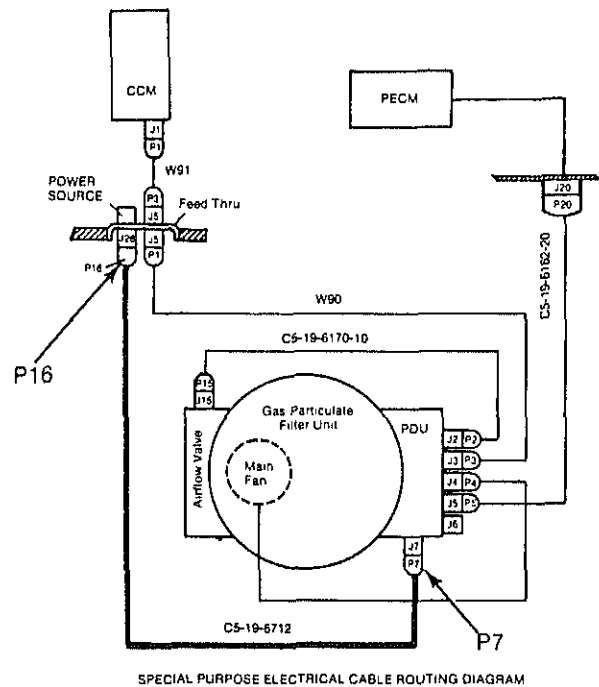
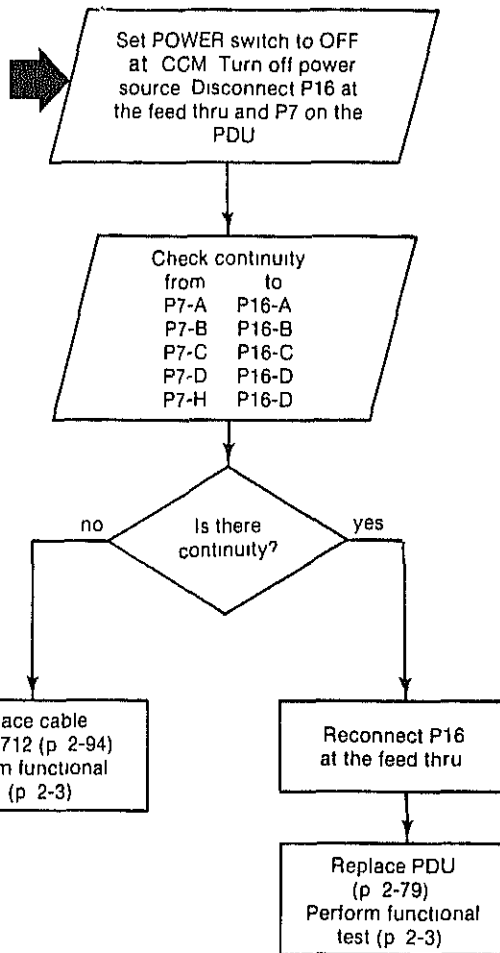
CCM = Compartment Control Module

PDU = Power Distribution Unit

TP = Test Point

3 NO POWER INDICATION (ALL INDICATOR LIGHTS DO NOT ILLUMINATE WHEN PRESSED TO TEST) (CONT).

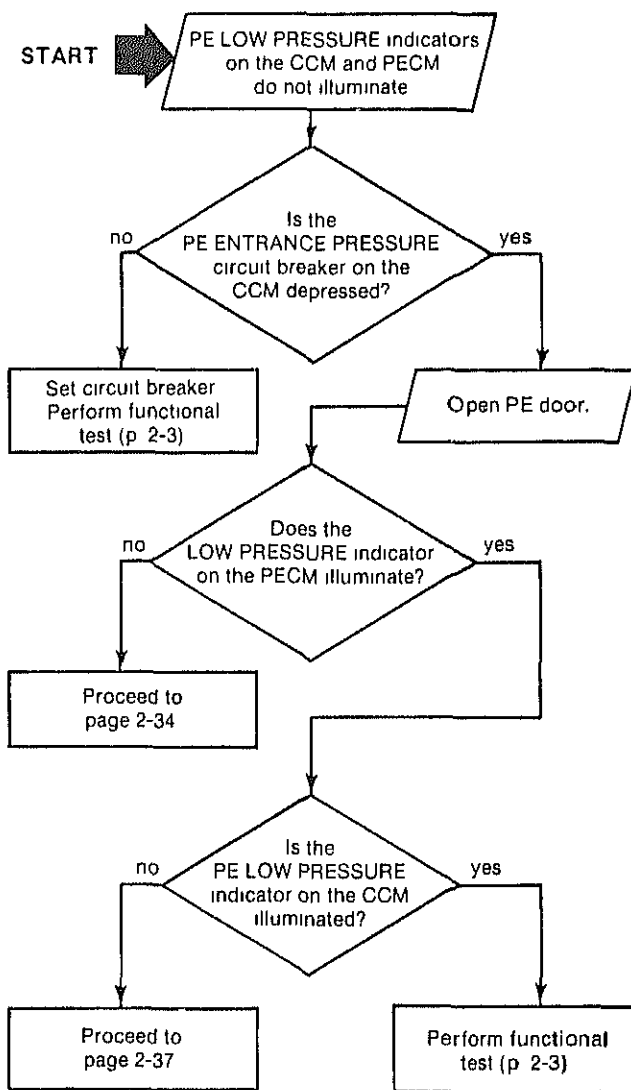
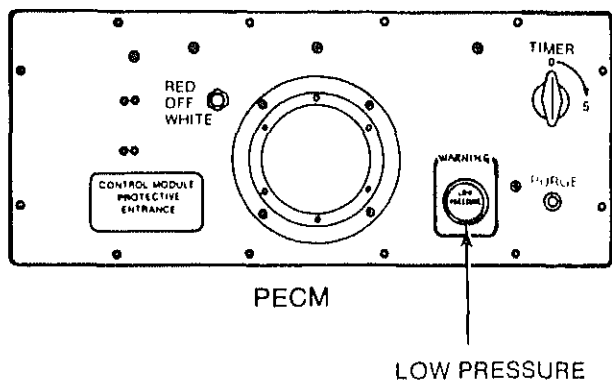
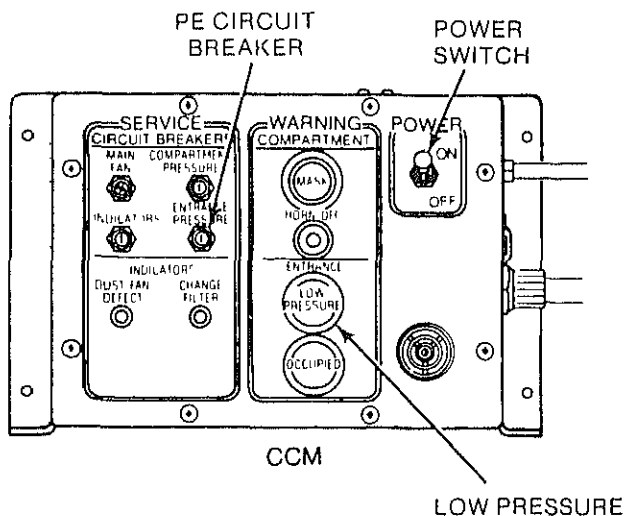
Page
2-31



LEGEND

PDU = Power Distribution Unit

4. PROTECTIVE ENTRANCE LOW PRESSURE LIGHTS WILL NOT COME ON



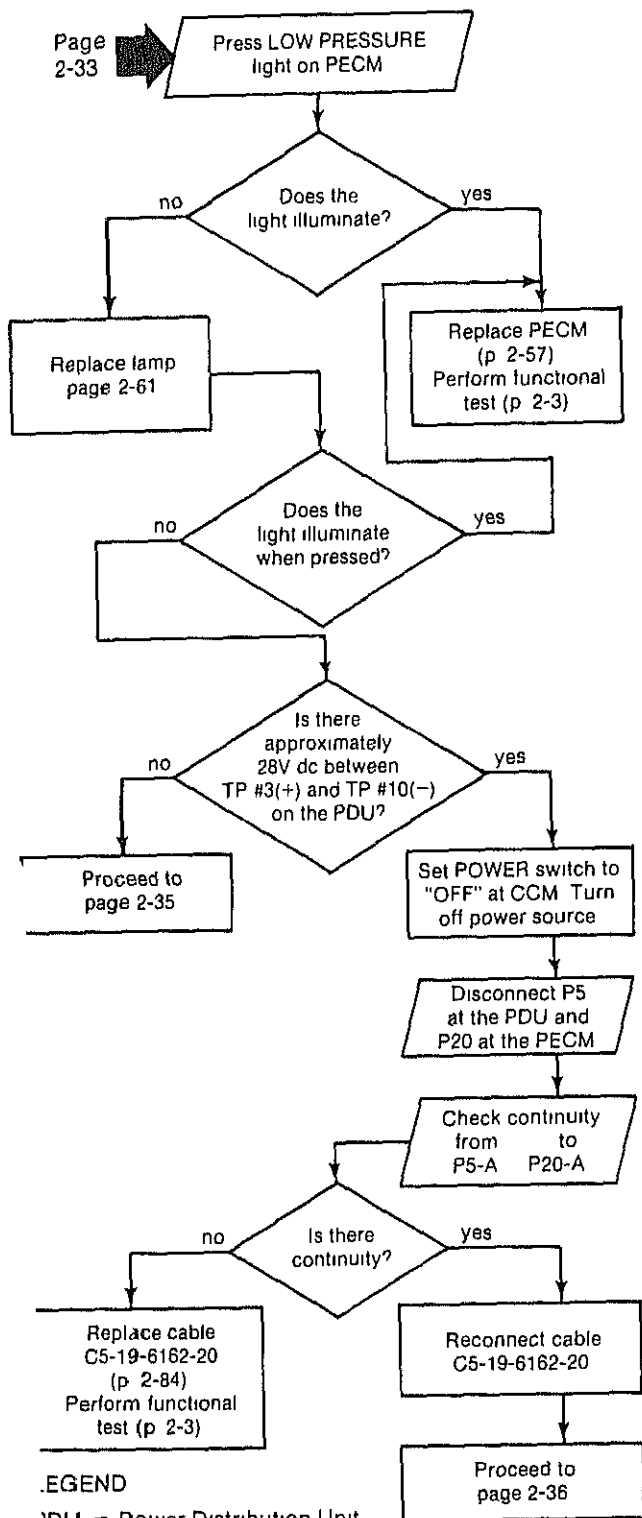
LEGEND

CCM = Compartment Control Module

PE = Protective Entrance

PECM = Protective Entrance Control Module

4. PROTECTIVE ENTRANCE LOW PRESSURE LIGHTS WILL NOT COME ON (CONT).



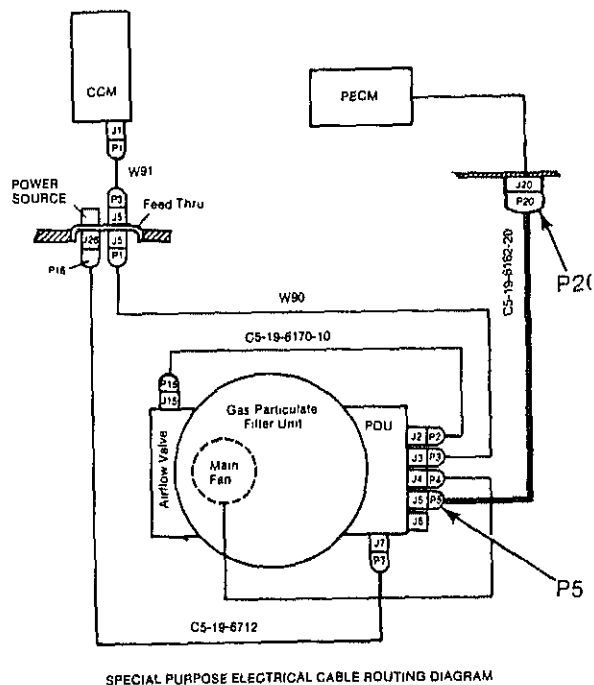
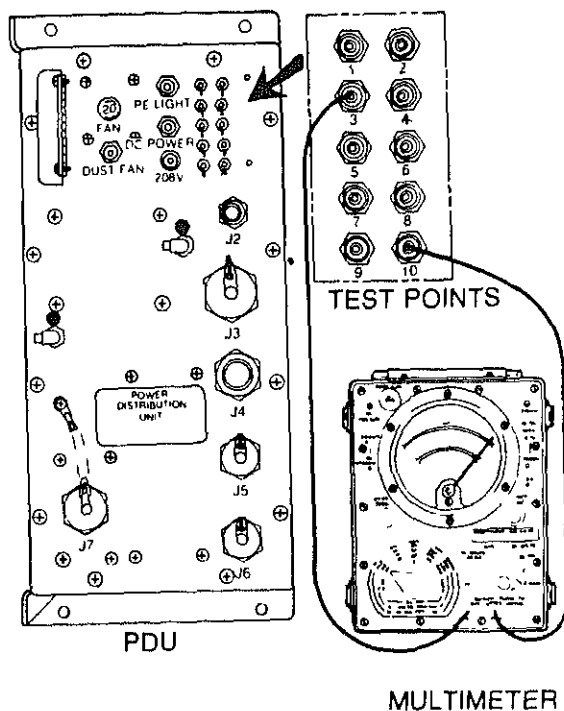
LEGEND

'DU = Power Distribution Unit

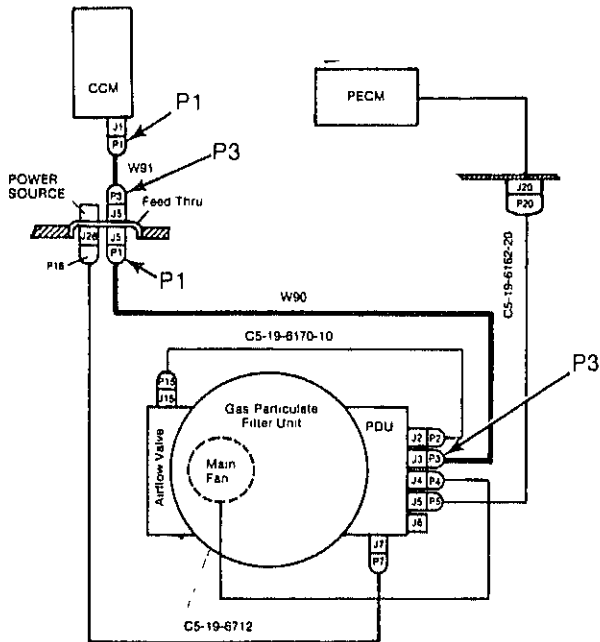
'E = Protective Entrance

'ECM = Protective Entrance Control Module

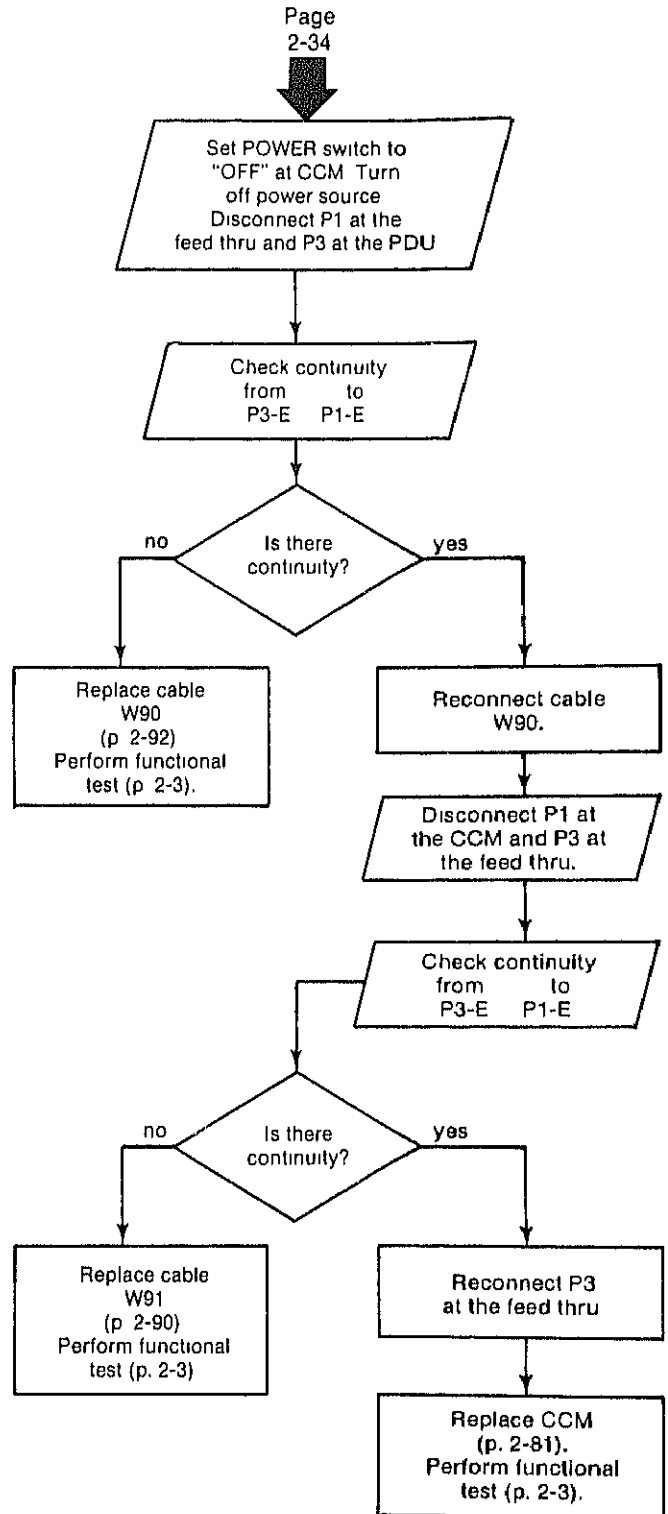
P = Test Point



Page
2-34



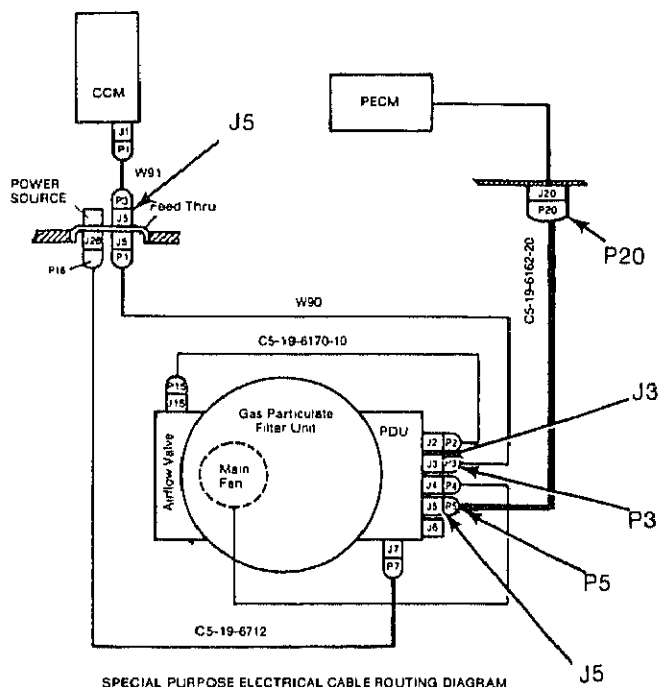
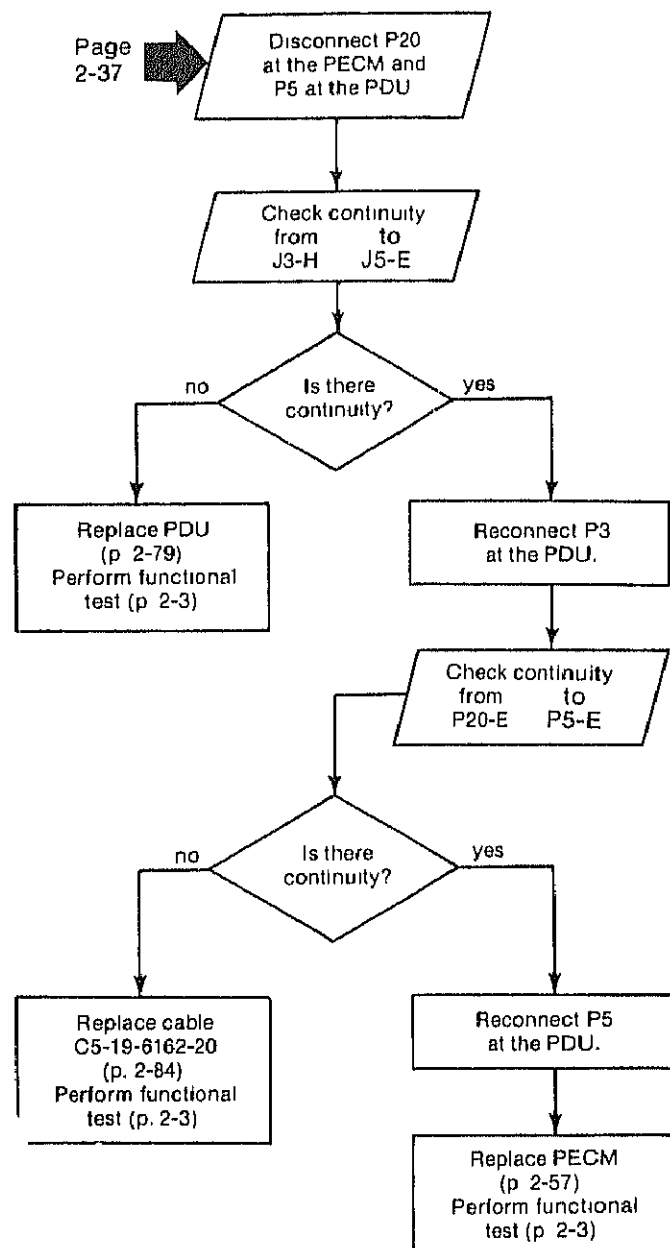
SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



LEGEND

CCM = Compartment Control Module
PDU = Power Distribution Unit

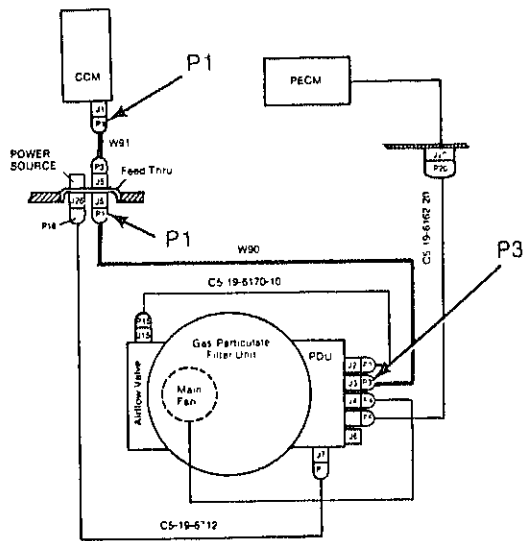
4. PROTECTIVE ENTRANCE LOW PRESSURE LIGHTS WILL NOT COME ON (CONT).



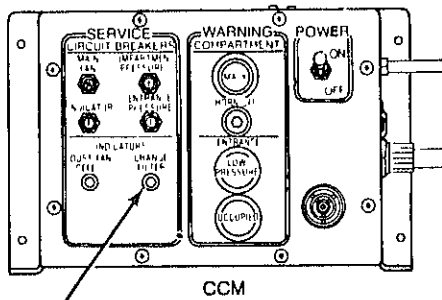
EGEND

PDU = Power Distribution Unit

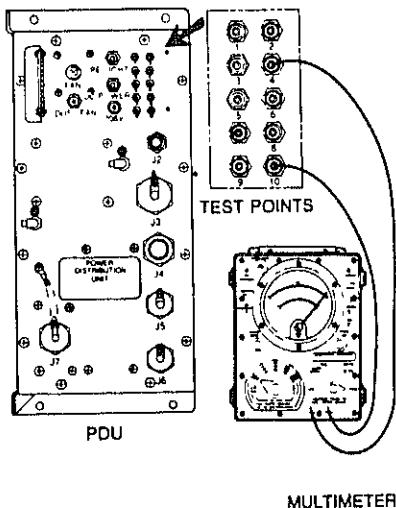
CM = Protective Entrance Control Module



SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



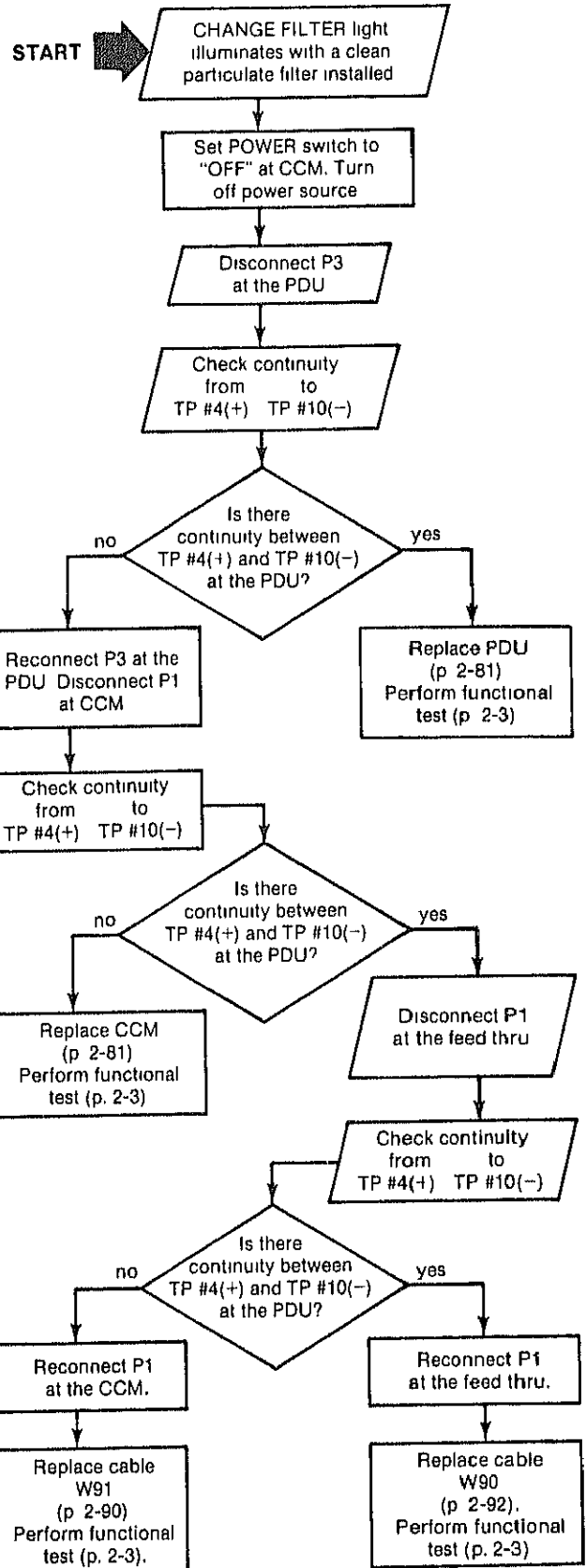
CHANGE FILTER INDICATOR

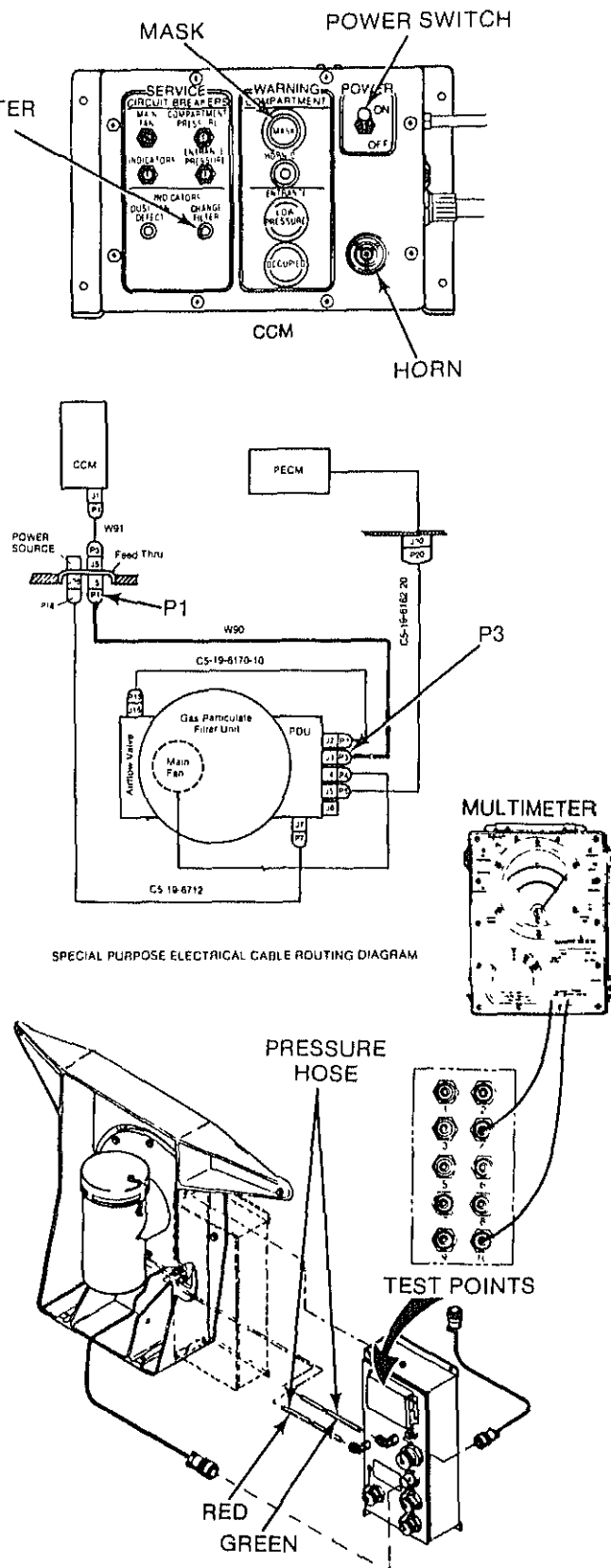


LEGEND

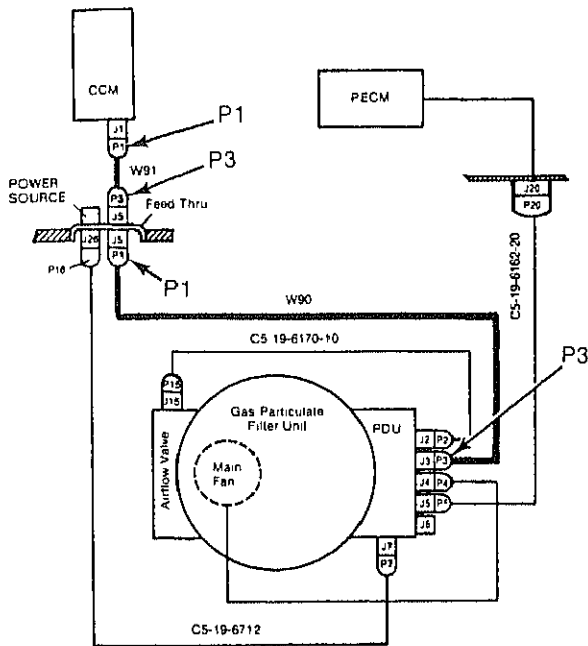
CCM = Compartment Control Module
PDU = Power Distribution Unit
TP = Test Point

5. CHANGE FILTER LIGHTS WITH CLEAN FILTER

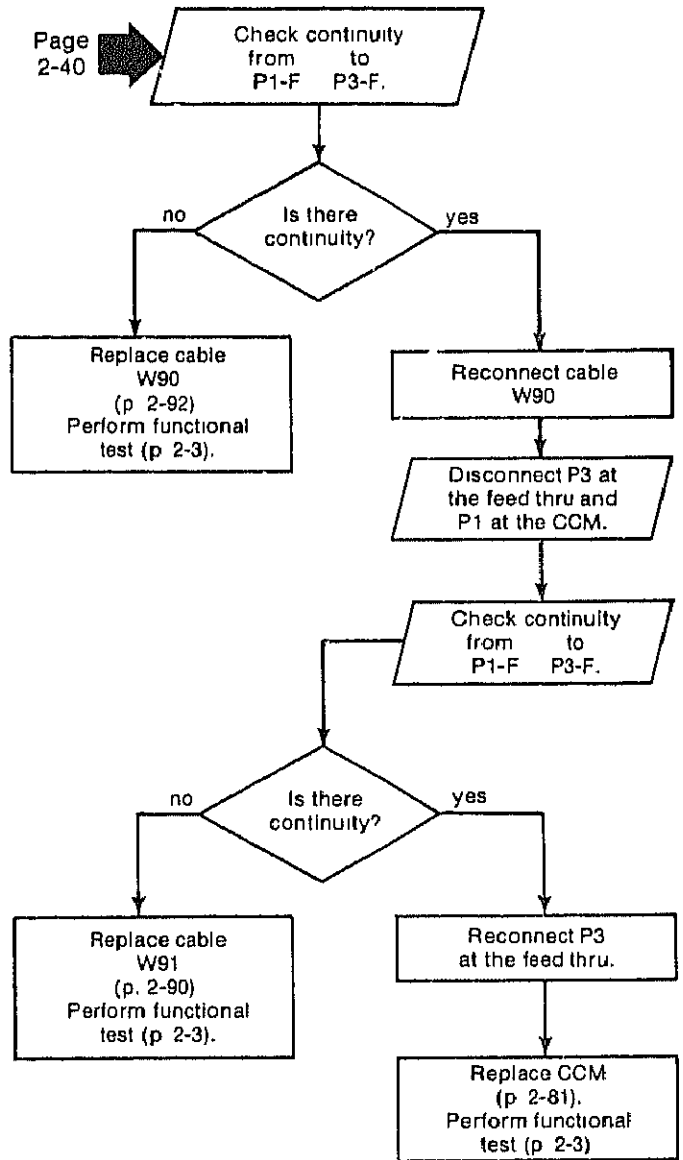




SCM = Compartment Control Module
 PDU = Power Distribution Unit
 P = Test Point



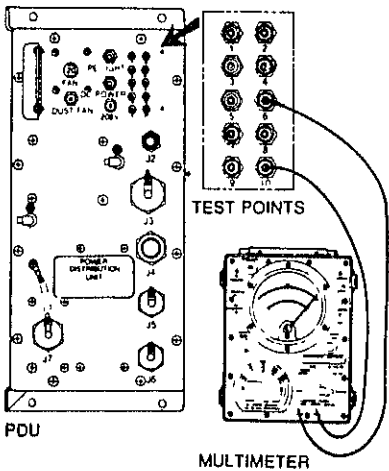
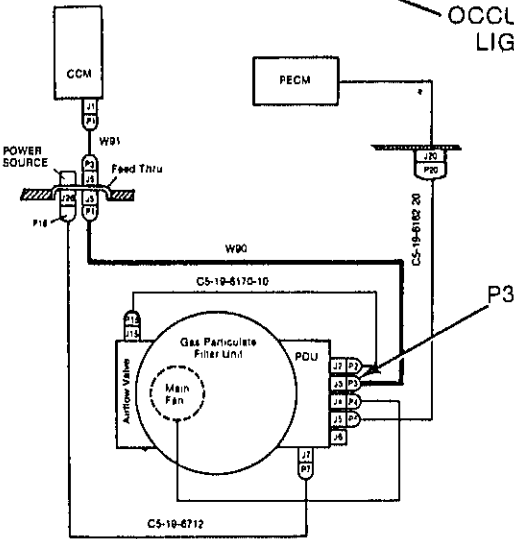
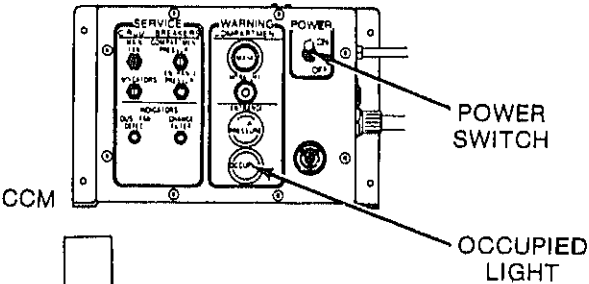
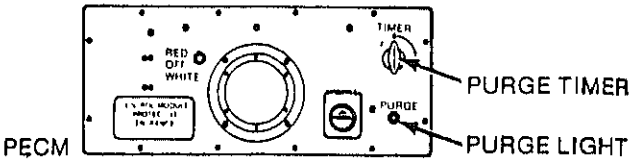
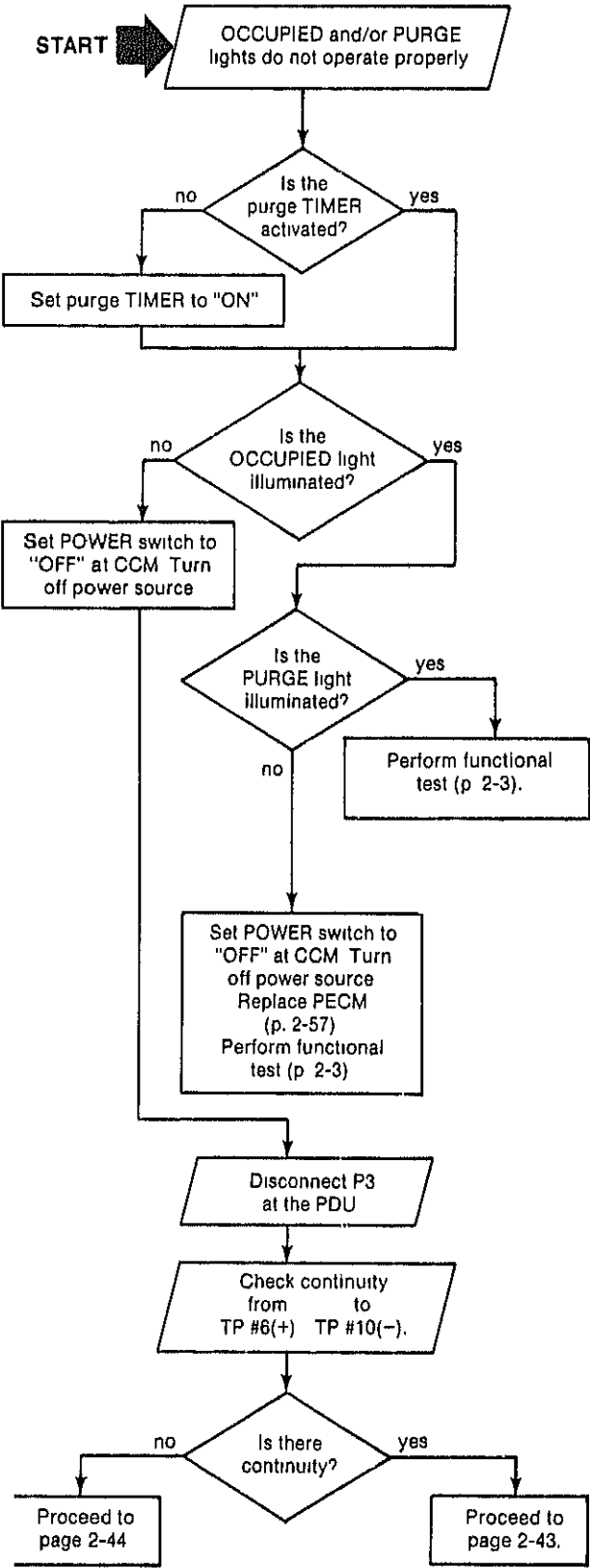
SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



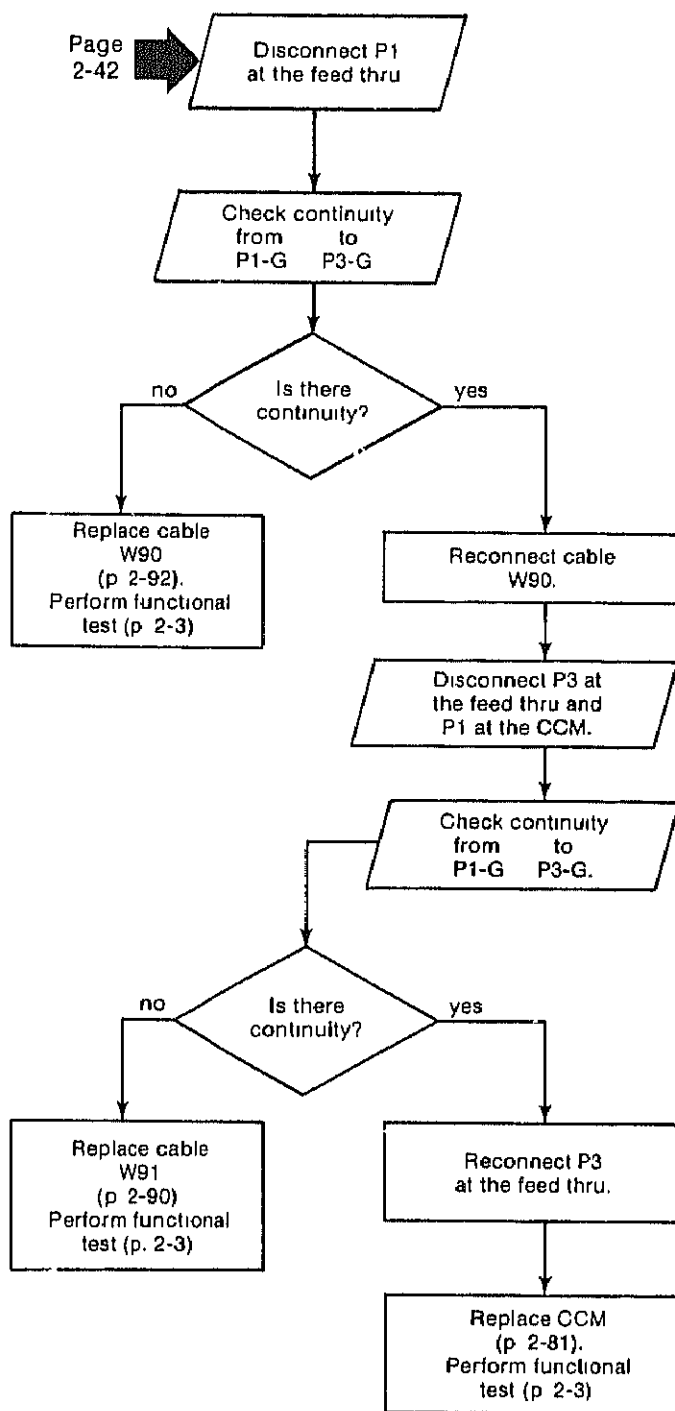
LEGEND

CCM = Compartment Control Module

7. OCCUPIED AND PURGE LIGHTS DO NOT OPERATE PROPERLY.

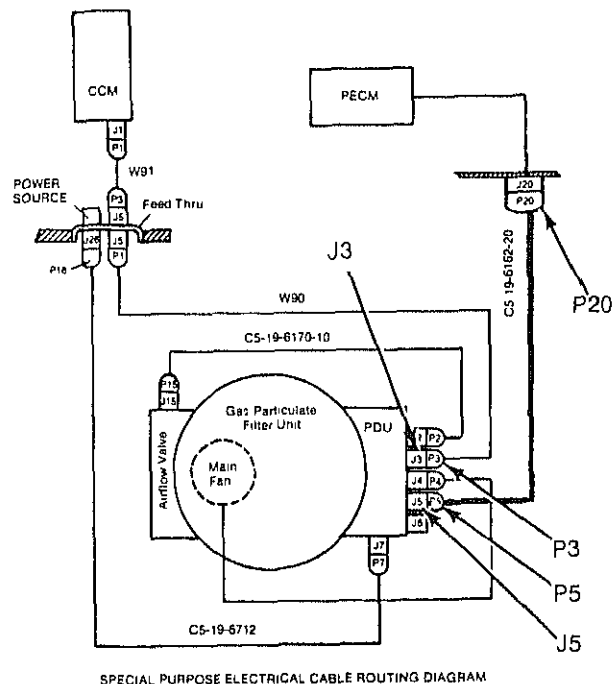
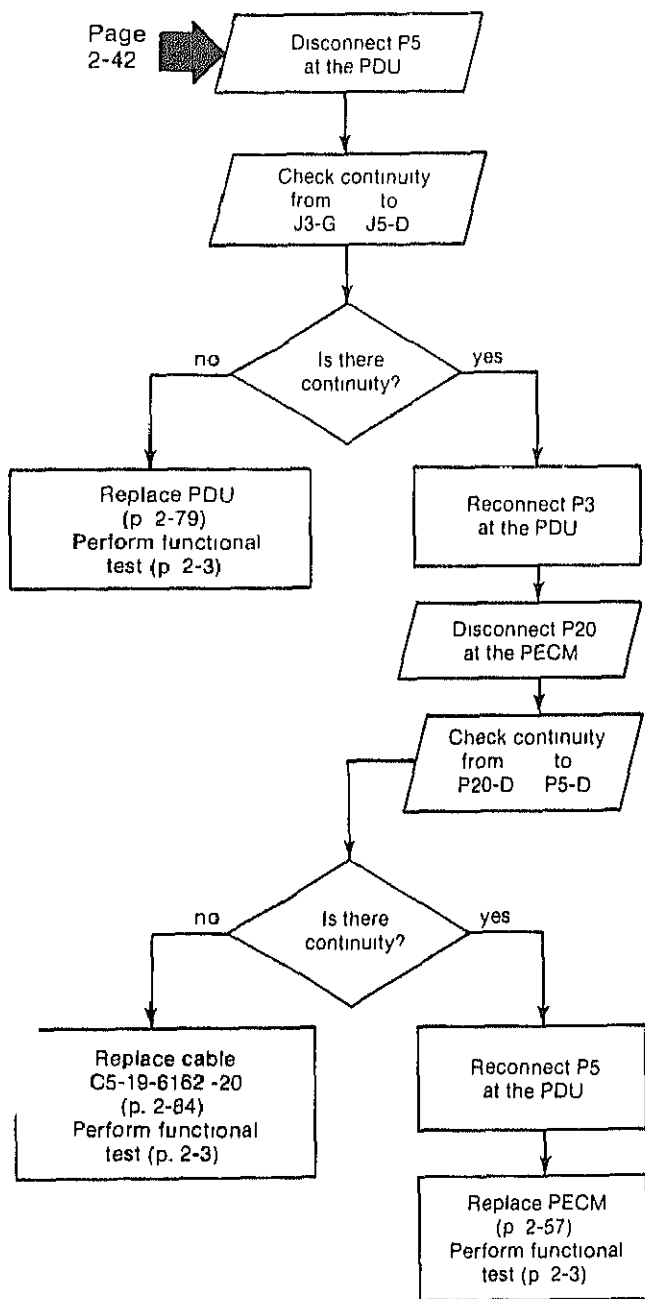


LEGEND
PDU = Power Distribution Unit
PECM = Protective Entrance Control Module
TP = Test Point



CCM = Compartment Control Module

7 OCCUPIED AND PURGE LIGHTS DO NOT OPERATE PROPERLY (CONT).

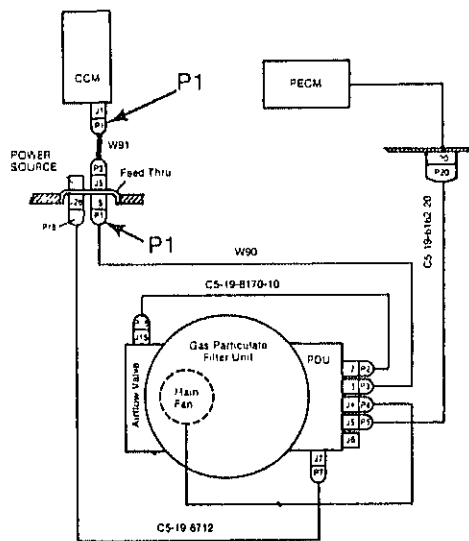
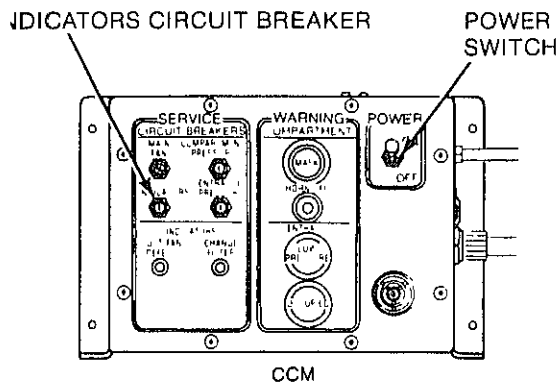


LEGEND

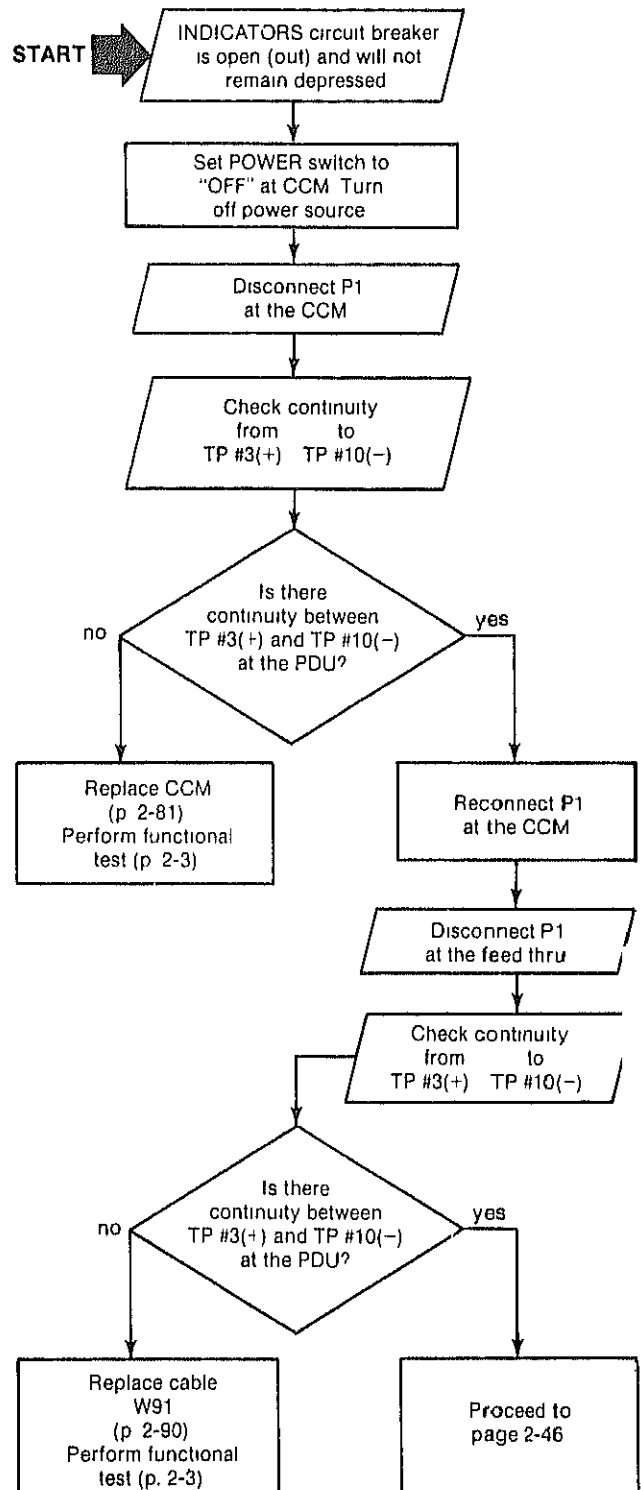
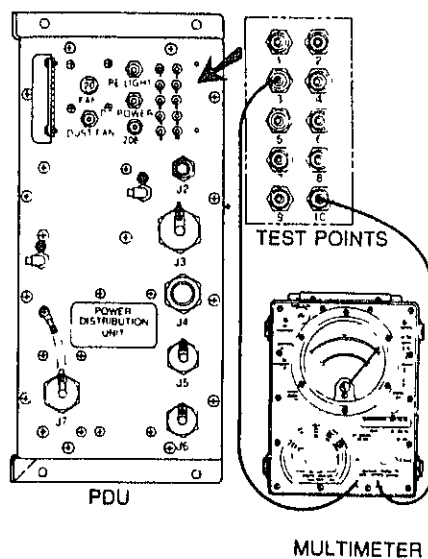
PDU = Power Distribution Unit

PECM = Protective Entrance Control Module

8. INDICATORS CIRCUIT BREAKER TRIPS.



SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



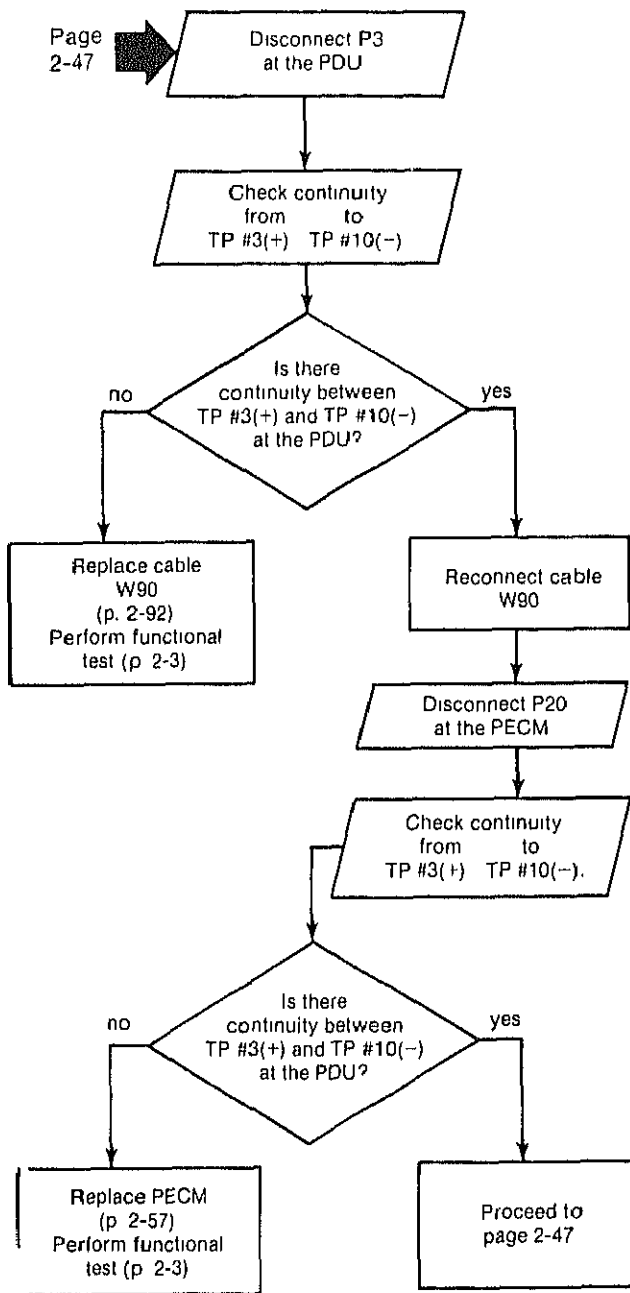
LEGEND

CCM = Compartment Control Module

PDU = Power Distribution Unit

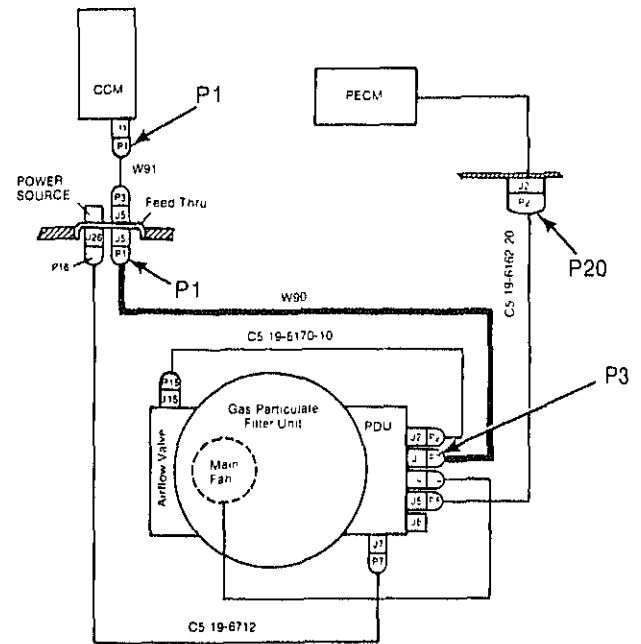
TP = Test Point

8 INDICATORS CIRCUIT BREAKER TRIPS (CONT)

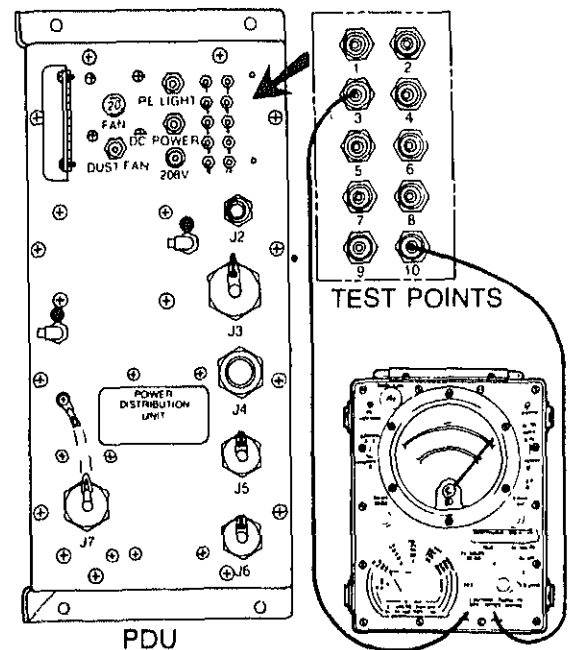


LEGEND

PDU = Power Distribution Unit
 PECM = Protective Entrance Control Module
 TP = Test Point

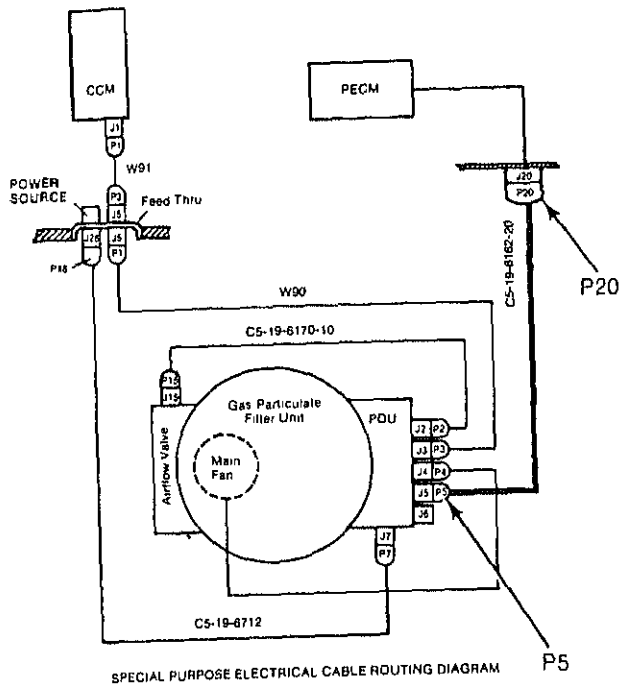


SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM

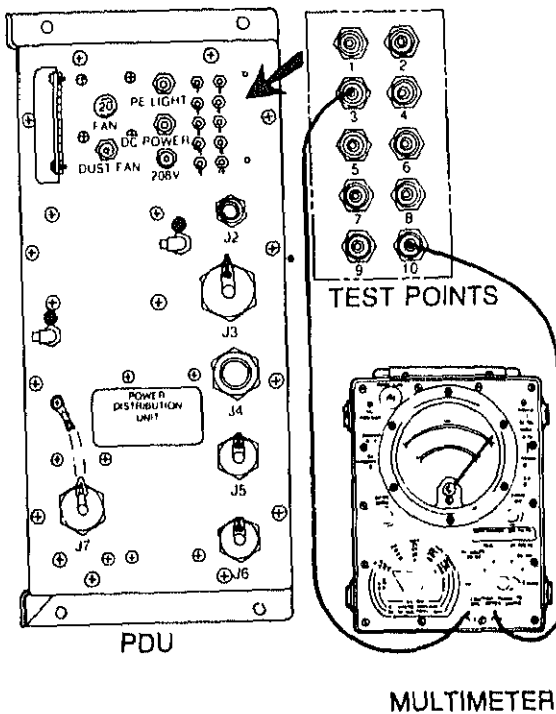
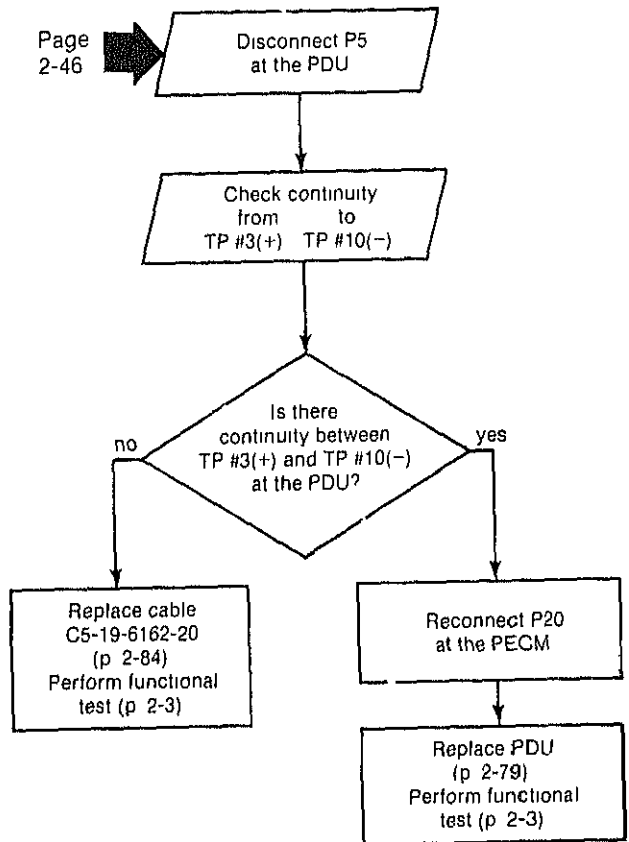


PDU

MULTIMETER



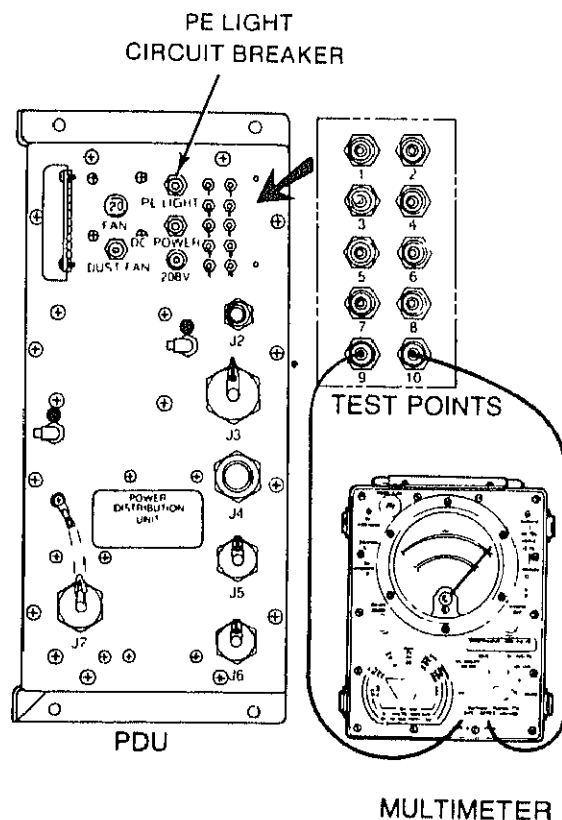
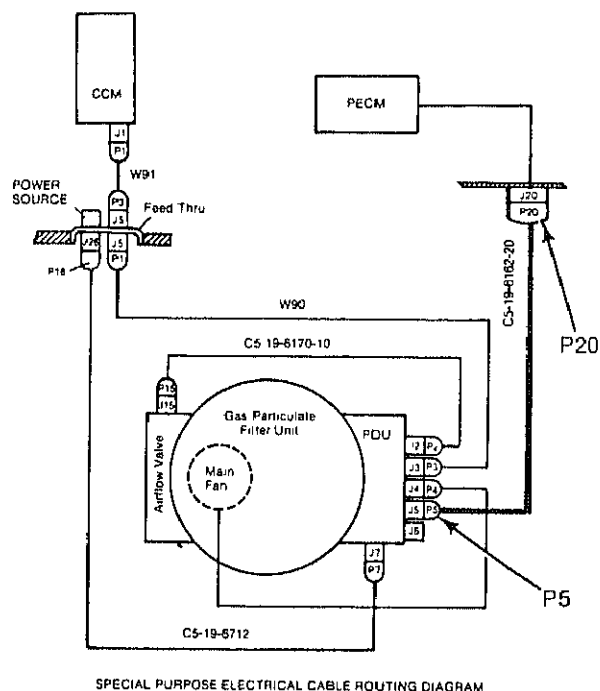
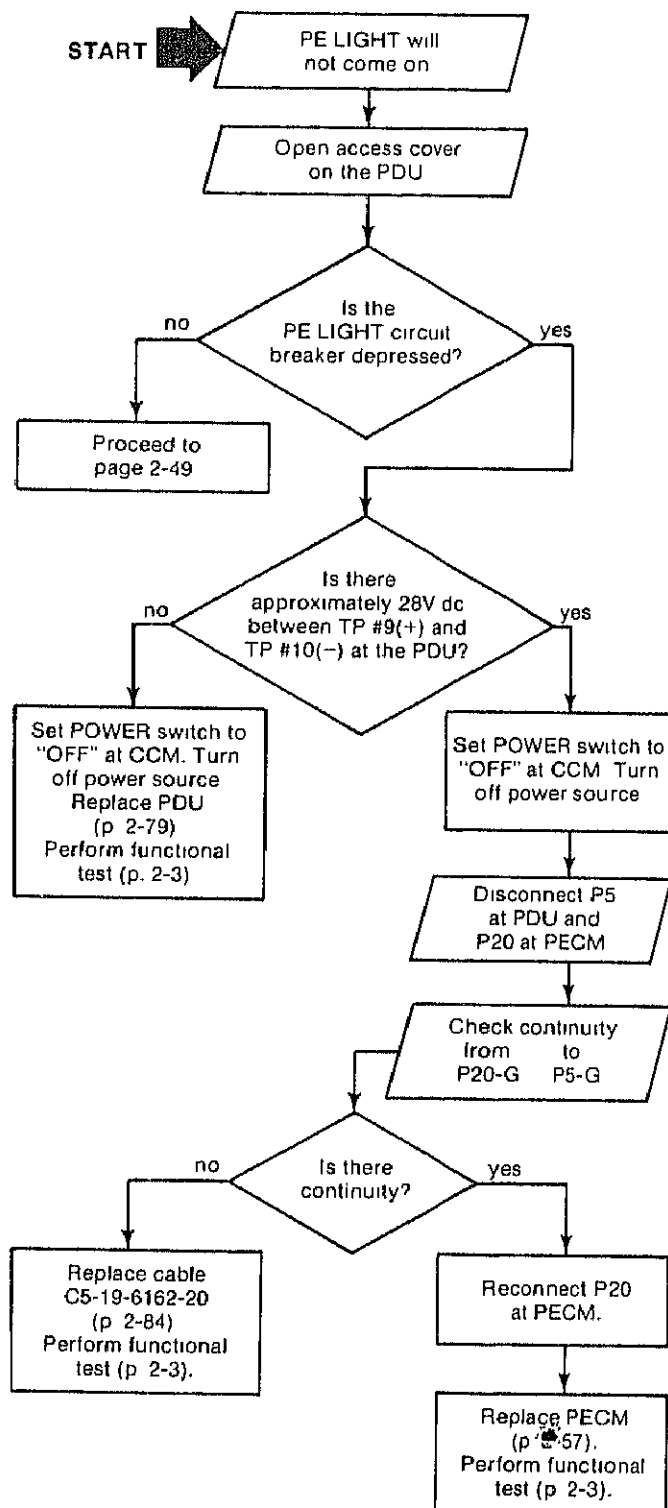
Page
2-46



LEGEND

PDU = Power Distribution Unit
TP = Test Point

9. PROTECTIVE ENTRANCE DOME LIGHT DOES NOT COME ON.



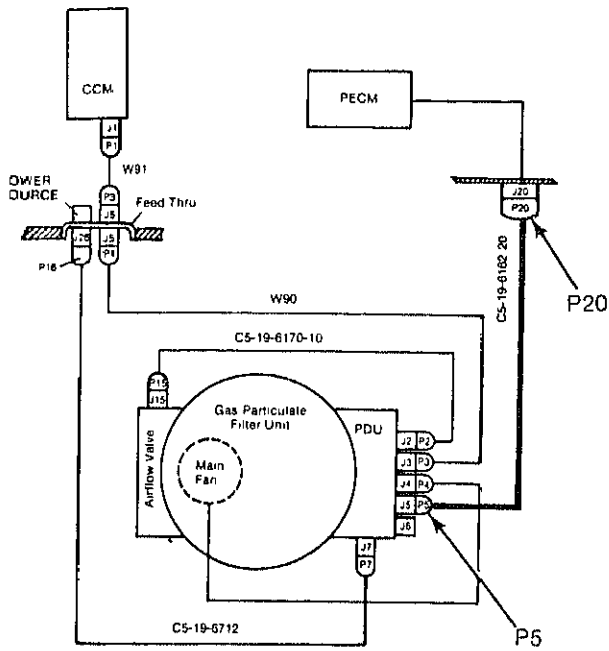
LEGEND

PDU = Power Distribution Unit

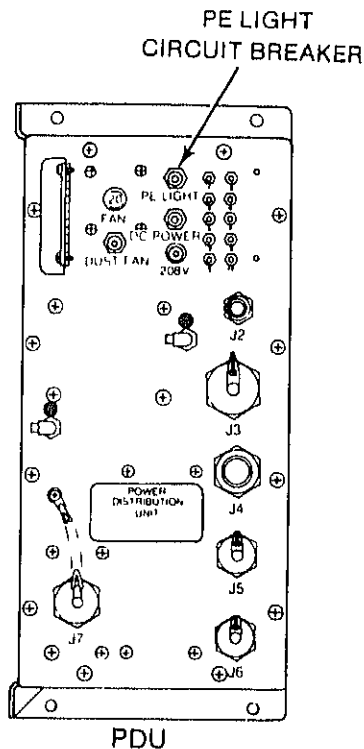
PE = Protective Entrance

PECM = Protective Entrance Control Module

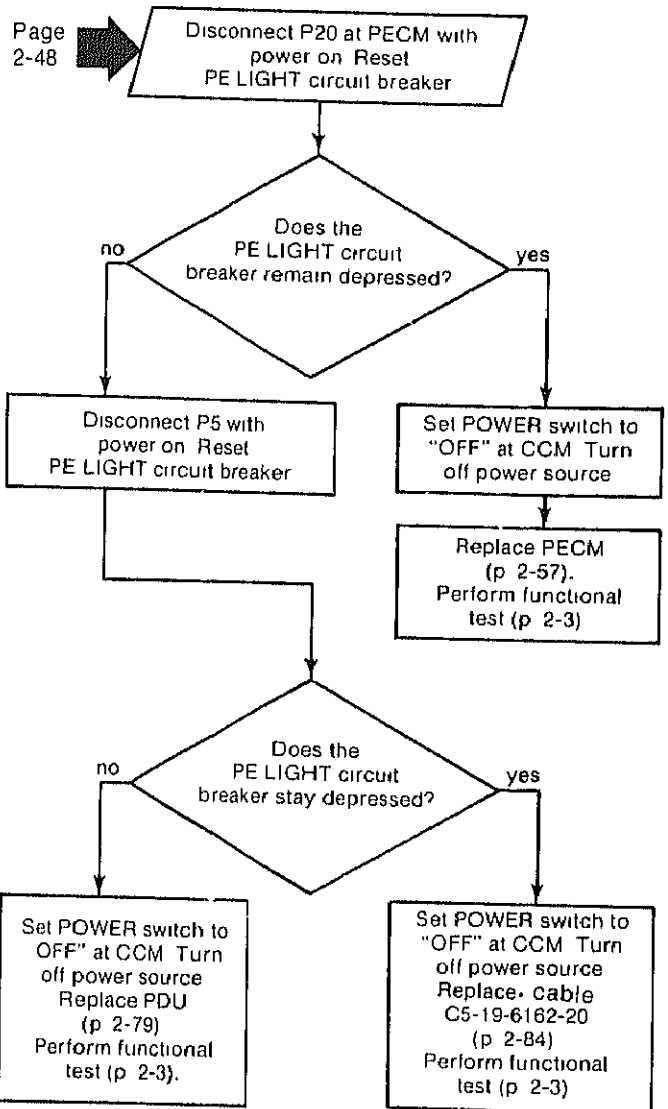
TP = Test Point



SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM



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LEGEND

PDU = Power Distribution Unit

PE = Protective Entrance

PECM = Protective Entrance Control Module

Section VI MAINTENANCE PROCEDURES FOR M14 PROTECTIVE ENTRANCE

2-10. GENERAL. These instructions are for use by organizational maintenance personnel. They apply to:
M14 protective entrance
Protective entrance control module

2-11. M14 PROTECTIVE ENTRANCE - MAINTENANCE INSTRUCTIONS.

This task covers

- | | | | |
|----------------|-----------------|----------------|-------------|
| a. Replacement | c. Removal | e. Disassembly | g. Painting |
| b. Repair | d. Installation | f. Reassembly | |

INITIAL SETUP

Tools

General Mechanics Tool Kit
SC 5180-90-CL-N26

References

*TM 9-1430-600-12-1 Engagement Control Station
*TM 9-1430-602-12-1 Information Coordination Central
*TM 9-1430-604-12-1 Communication Relay Group

LOCATION	ITEM	ACTION
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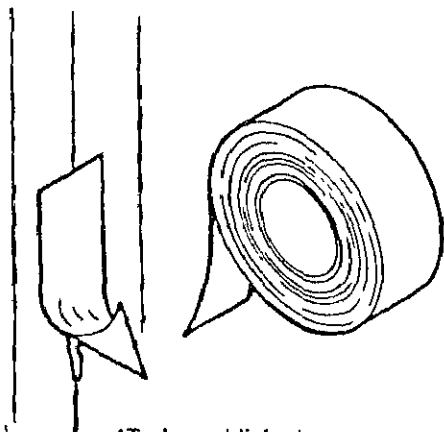
REPLACEMENT

PATRIOT	M14 protective entrance	Refer to TM 9-1430-600-12-1, TM 9-1430-602-12-1, or TM 9-1430-604-12-1, for protective entrance replacement instructions.
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REPAIR

M14 Protective Entrance (PE)

Impermeable wall fabric



*To be published

Repair tears or slits:

Clean damaged area using rags (item 6, app D) and dry-cleaning solvent (item 4, app D).

Cut a piece of tape (item 7, app D) about four inches longer than the tear or slit. Position tape over the tear or slit and press firmly in place.

Apply tape to the inside of the protective entrance impermeable fabric wall. If necessary for added strength, crossed strips of tape may be used

LOCATION	ITEM	ACTION
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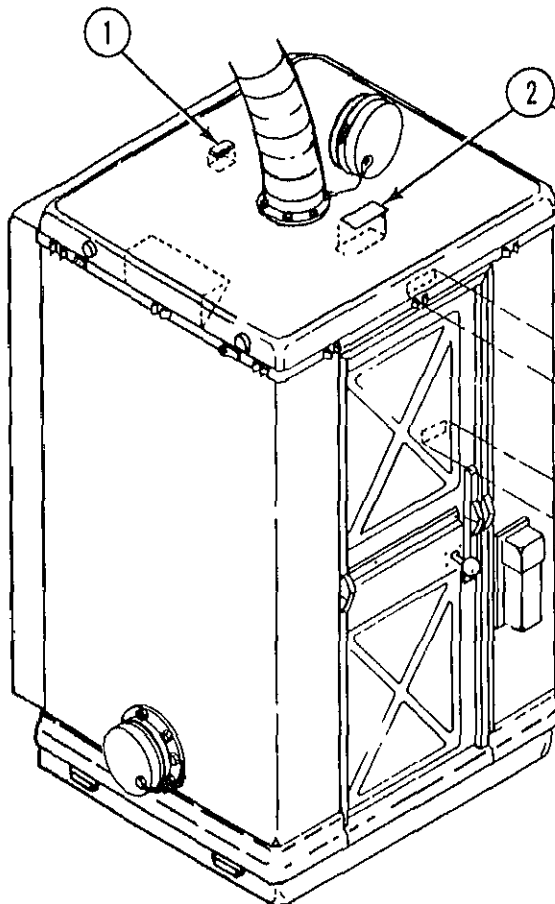
REMOVAL

M14 Protective
Entrance

Instruction plates (1, 2,
and 4) and identification
plate (3)

Pick up edge of plate with sharp tool.

Pull plate completely off the mounting surface



OPENING PROCEDURES

- 1 REMOVE CAP AND ATTACH AIR HOSE
- 2 DISENGAGE LATCHES - RAISE TOP TO FULL HEIGHT
3. OPEN DOOR, INSERT DETENT PINS IN DOOR FRAME, (OPENING INSTRUCTIONS CONTINUED ON P E WALL)

CLOSING PROCEDURES

- 7 LOWER DOOR SIDE - TUCK IN ALL FABRIC - LOWER BACK SIDE
- 8 CHECK FOR FABRIC AND SHELL ALIGNMENT - SECURE LATCHES
- 9 REMOVE AIR HOSE - REPLACE CAP

ENTRANCE, PROTECTIVE PRESSURIZED
COLLAPSIBLE M14

NSN
SERIAL NO
CONT NO US

CAUTION
DO NOT ENTER WHEN
PROTECTIVE ENTRANCE
IS OCCUPIED

2-11. M14 PROTECTIVE ENTRANCE - MAINTENANCE INSTRUCTIONS (CONT).

LOCATION

ITEM

ACTION

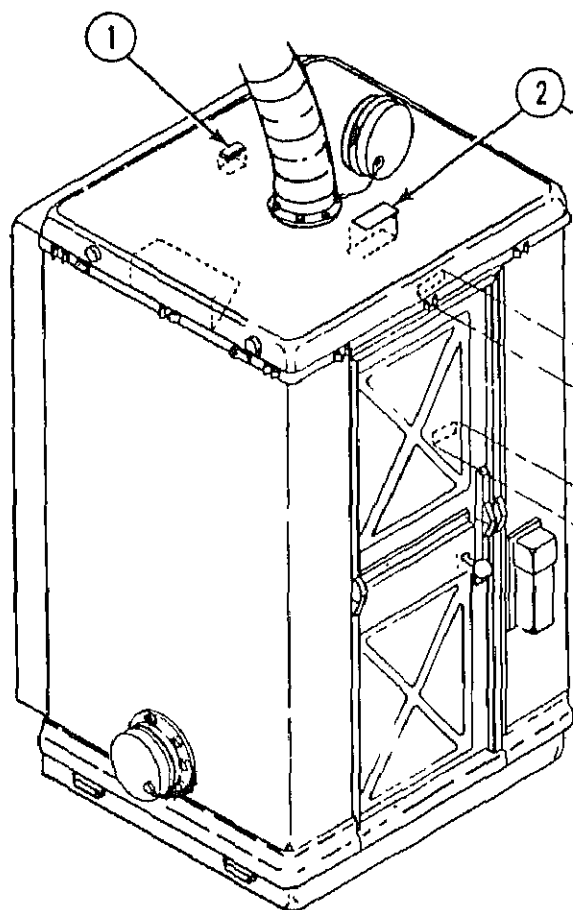
INSTALLATION

Instruction plates (1, 2, and 4) and identification plate (3)

Thoroughly clean mounting surface with dry-cleaning solvent (item 4, app D). Surface must be free of all contamination such as oil, grease, dirt, or any foreign matter

Peel back paper from adhesive back of instruction or identification plate.

Mount plate and apply pressure to plate surface

**OPENING PROCEDURES**

- 1 REMOVE CAP AND ATTACH AIR HOSE
- 2 DISENGAGE LATCHES - RAISE TOP TO FULL HEIGHT
- 3 OPEN DOOR, INSERT DETENT PINS IN DOOR FRAME, (OPENING INSTRUCTIONS CONTINUED ON P E WALL)

CLOSING PROCEDURES

- 7 LOWER DOOR SIDE - TUCK IN ALL FABRIC - LOWER BACK SIDE
- 8 CHECK FOR FABRIC AND SHELL ALIGNMENT - SECURE LATCHES
- 9 REMOVE AIR HOSE - REPLACE CAP

**ENTRANCE, PROTECTIVE PRESSURIZED
COLLAPSIBLE M14**

NSN
SERIAL NO
CONT NO US

CAUTION
DO NOT ENTER WHEN
PROTECTIVE ENTRANCE
IS OCCUPIED

LOCATION	ITEM	ACTION
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REMOVAL

M14 Protective Entrance
Airduct Inlet

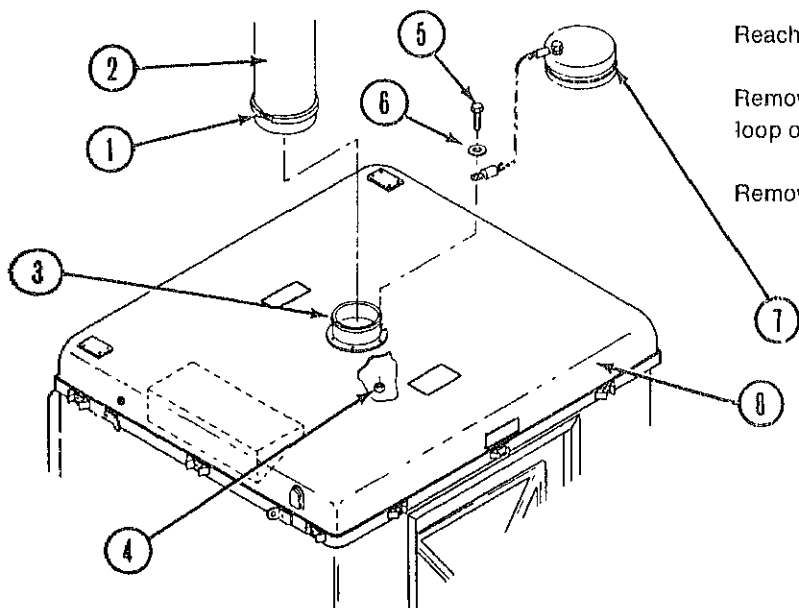
Dust and moisture seal
protective cap

Loosen hose clamp (1) Remove airduct hose (2) from
inlet (3)

Reach through inlet and hold nut (4) with wrench.

Remove screw (5) from nut (4), washer (6), and cable
loop on cap (7) from inlet (3)

Remove cap (7) from protective entrance (8)



M14 Protective
Entrance Airduct
Outlet

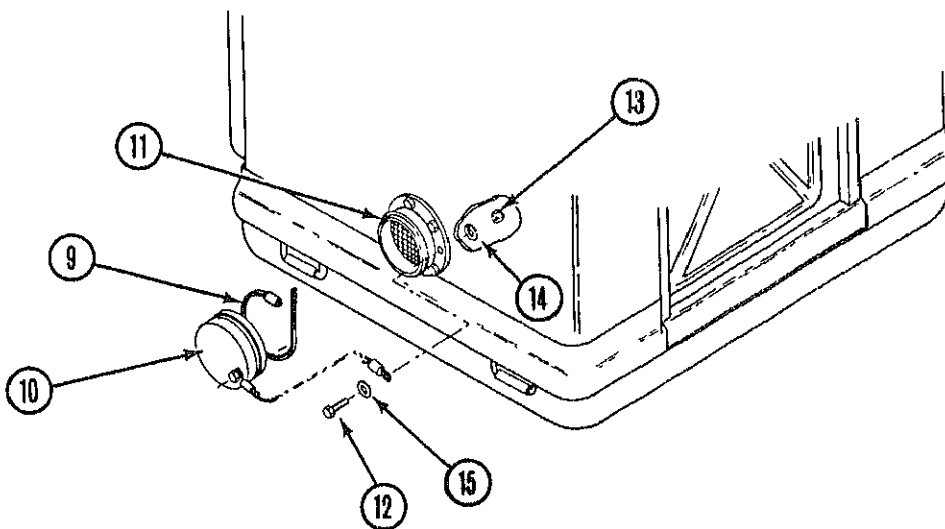
Dust and moisture seal
protective cap

Loosen hose clamp (9) Remove protective cap (10) from
outlet (11)

Hold screw (12) with a wrench

From inside PE, unscrew nut (13) and remove washer
(14)

Remove screw (12), washer (15) and cable loop on cap (10)
from protective entrance



2-11. M14 PROTECTIVE ENTRANCE - MAINTENANCE INSTRUCTIONS (CONT).

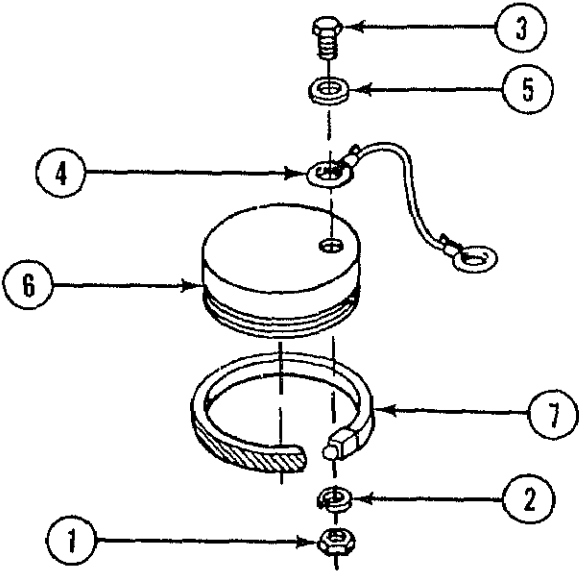
LOCATION	ITEM	ACTION
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DISASSEMBLY

Dust and moisture seal
protective cap

Unscrew nut (1). Remove washer (2), screw (3), support
cable (4), and washer (5) from rubber cap (6).

Unscrew adjustment screw on hose clamp (7) and
remove from rubber cap (6).



REPAIR

Support cable

Fabricate support cable (fig E-1, app E)

REASSEMBLY

Dust and moisture seal
protective cap

Install hose clamp (7) in groove in rubber cap (6). Turn
adjustment screw just enough to keep clamp in place.

Secure support cable (4) to rubber cap (6) with screw (3),
washer (5), washer (2), and nut (1).

LOCATION	ITEM	ACTION
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INSTALLATION

M14 Protective
Entrance Airduct Inlet

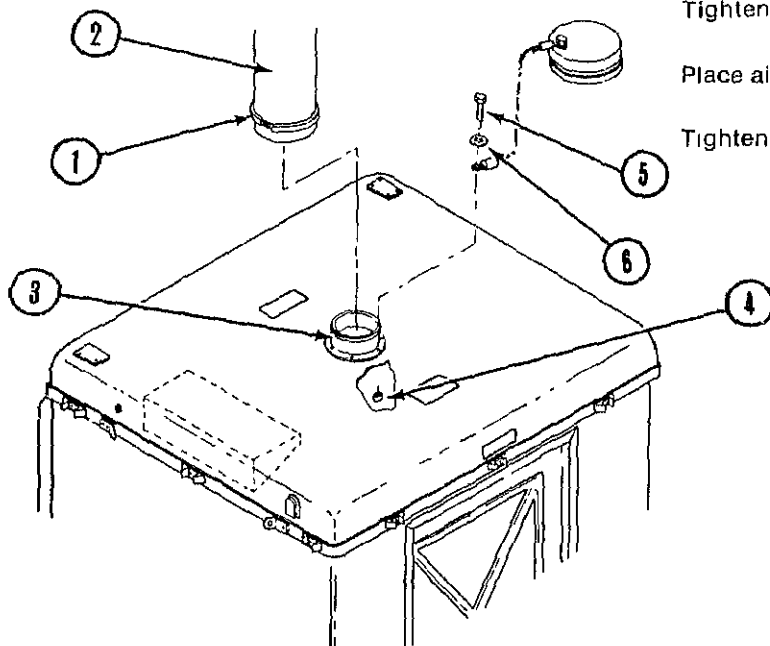
Dust and moisture seal
protective cap

Place screw (5) through washer (6), support cable loop and
hole at base of airduct inlet (3).

Reach through airduct inlet and install nut (4)
Tighten securely

Place airduct hose (2) on airduct inlet (3).

Tighten hose clamp (1) securely.



M14 Protective
Entrance Airduct Outlet

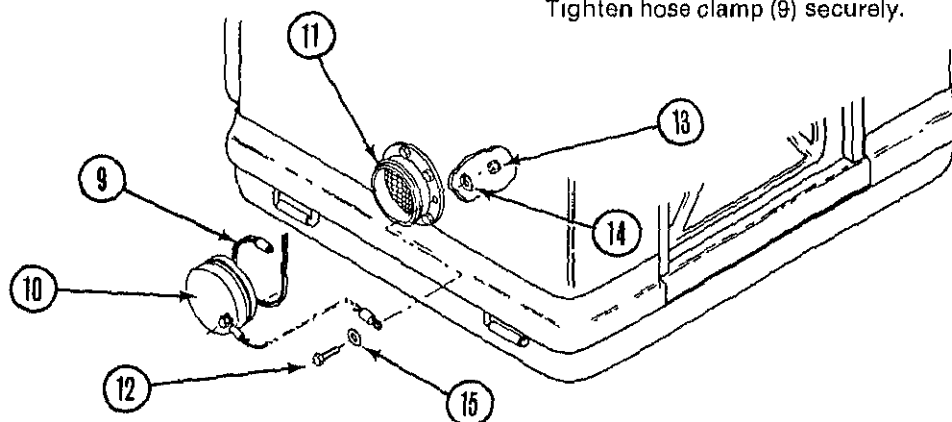
Dust and moisture seal
protective cap

Install screw (12) and washer (15) with support cable loop

From inside PE, install washer (14) and nut (13)
on screw (12). Tighten securely.

Place protective cap (10) on airduct outlet (11).

Tighten hose clamp (9) securely.



2-11. M14 PROTECTIVE ENTRANCE - MAINTENANCE INSTRUCTIONS (CONT).

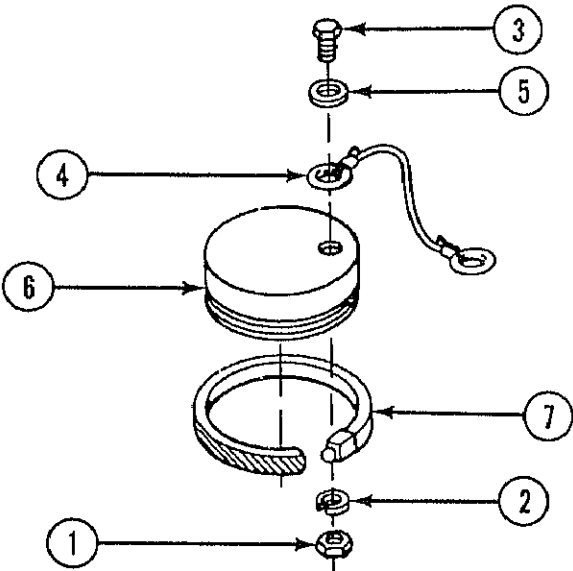
LOCATION	ITEM	ACTION
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DISASSEMBLY

Dust and moisture seal
protective cap

Unscrew nut (1) Remove washer (2), screw (3), support
cable (4), and washer (5) from rubber cap (6).

Unscrew adjustment screw on hose clamp (7) and
remove from rubber cap (6).



REPAIR

Support cable

Fabricate support cable (fig E-1, app E).

REASSEMBLY

Dust and moisture seal
protective cap

Install hose clamp (7) in groove in rubber cap (6). Turn
adjustment screw just enough to keep clamp in place.

Secure support cable (4) to rubber cap (6) with screw (3),
washer (5), washer (2), and nut (1).

LOCATION	ITEM	ACTION
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INSTALLATION

M14 Protective
Entrance Airduct Inlet

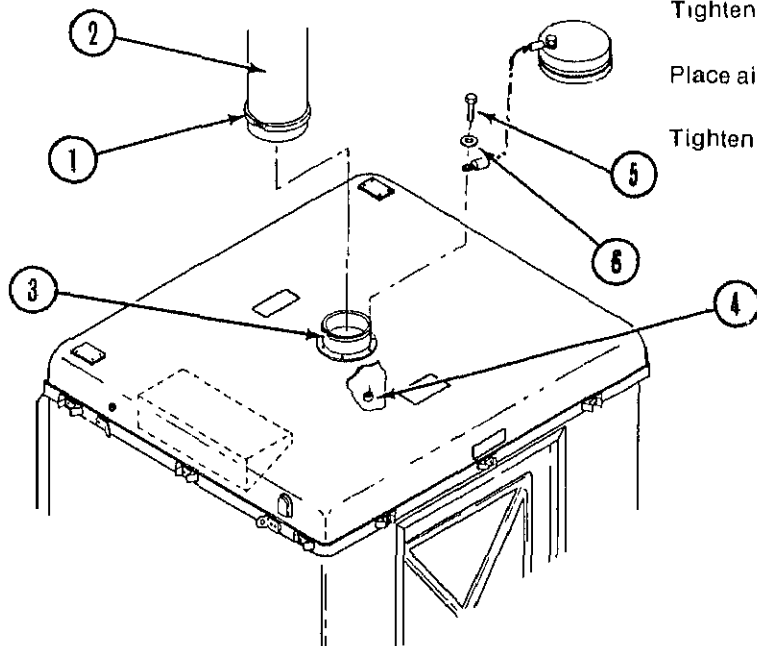
Dust and moisture seal
protective cap

Place screw (5) through washer (6), support cable loop and
hole at base of airduct inlet (3).

Reach through airduct inlet and install nut (4)
Tighten securely

Place airduct hose (2) on airduct inlet (3)

Tighten hose clamp (1) securely.



M14 Protective
Entrance Airduct Outlet

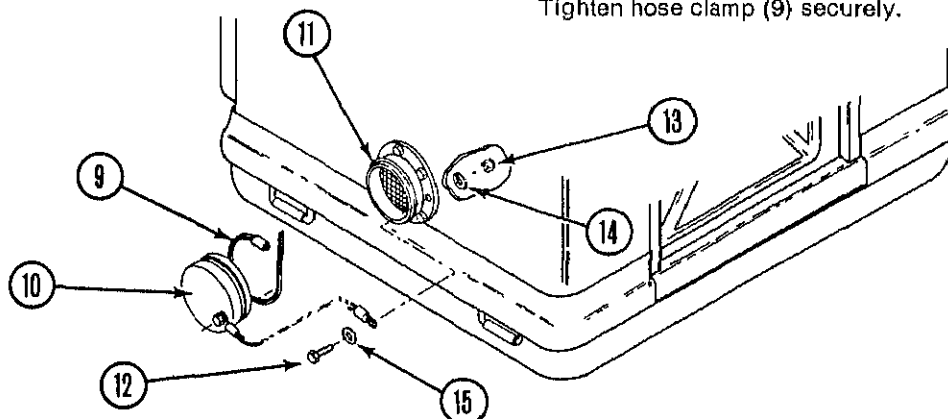
Dust and moisture seal
protective cap

Install screw (12) and washer (15) with support cable loop

From inside PE, install washer (14) and nut (13)
on screw (12). Tighten securely.

Place protective cap (10) on airduct outlet (11).

Tighten hose clamp (9) securely.



2-12. M14 PROTECTIVE ENTRANCE CONTROL MODULE - MAINTENANCE INSTRUCTIONS (CONT).

LOCATION	ITEM	ACTION
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REMOVAL (CONT)

M14 Protective Entrance

Protective entrance control module

Disconnect adapter (6) on hose (7) from adapter (8)

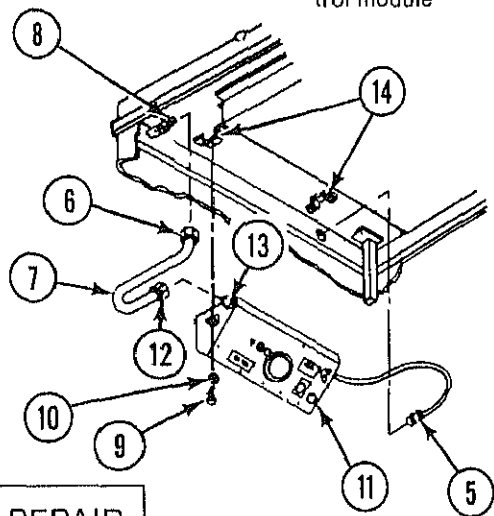
Remove screws (9) and washers (10)

Remove protective entrance control module (11) from inside the protective entrance

CAUTION

Hold coupling on protective entrance control module with a wrench to prevent it from turning

Disconnect adapter (12) on hose (7) from adapter (13) on protective entrance control module.

**REPAIR**

Hose

Fabricate replacement hose (7) (fig E-3A, app E). Cut adapters (6 and 12) from hose and insert adapters in new hose.

INSTALLATION

M14 Protective Entrance

Protective entrance control module

Install hose on protective entrance control module. Hold adapter (13) with a wrench and tighten adapter (12).

Position protective entrance control module (11) against brackets (14) in protective entrance.

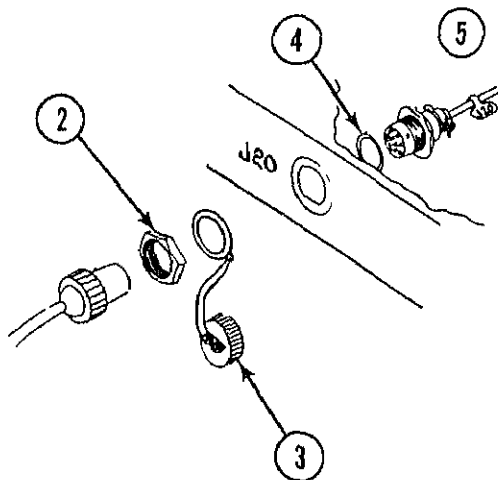
Install screws (9) thru washers (10) and into brackets (14). Tighten securely.

Install adapter (6) on adapter (8) and tighten.

Install electrical cable connector J20 (5) with preformed packing (4) in protective entrance from the inside.

From the outside, install loop of connector cover (3) and nut (2) on electrical cable connector J20 (5). Tighten nut securely.

Reconnect electrical cable plug P20.



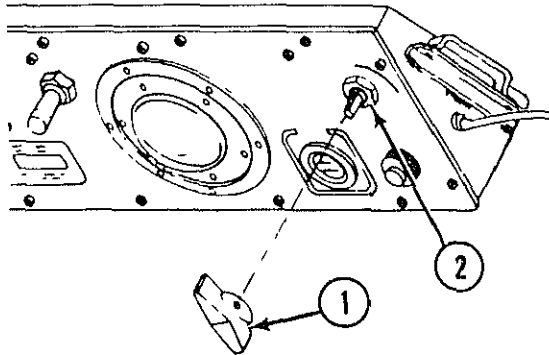
LOCATION	ITEM	ACTION
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REMOVAL

Protective Entrance
Control Module

Knob

Pull knob (1) from timer shaft (2)



INSTALLATION

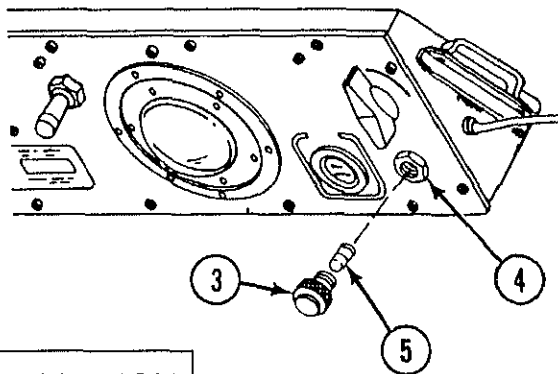
Align knob pointer with 0 on panel.
Push knob (1) on timer shaft (2).

REMOVAL

Protective Entrance
Control Module

PURGE Indicator
lamp

Unscrew indicator light (3) from indicator light base (4).
Pull out lamp (5) from indicator light (3).



INSTALLATION

Insert indicator lamp (5) in indicator light (3).

Install indicator light (3) in light base (4).

2-12. M14 PROTECTIVE ENTRANCE CONTROL MODULE - MAINTENANCE INSTRUCTIONS (CONT).

LOCATION	ITEM	ACTION
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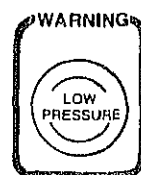
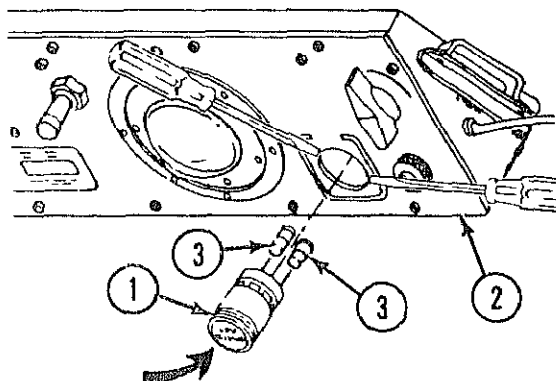
REMOVAL

Protective Entrance Control Module

LOW PRESSURE lamp

Using two screwdrivers, gently pry lens (1) from panel (2)

Remove lamps (3) from lens (1)



DETAIL A

INSTALLATION

Insert lamps (3) in lens (1) Insert lens (1) into panel (2) as shown in detail A Press lens into panel until it snaps into place

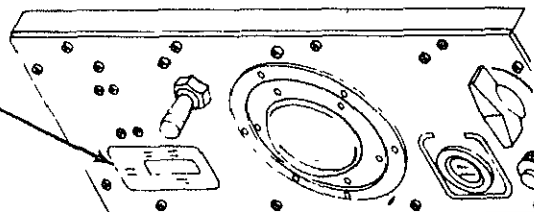
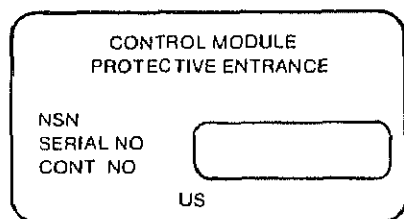
REMOVAL

Protective Entrance Control Module

Identification plate

Lift edge of plate (4) with a sharp tool.

Pull plate completely off the mounting surface.

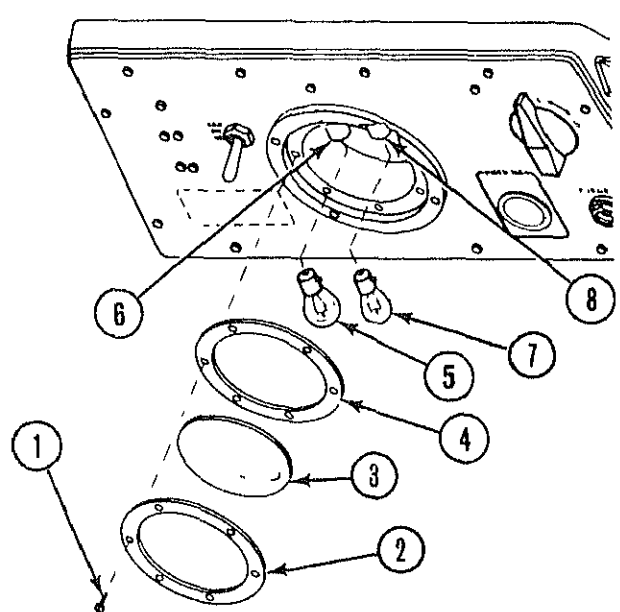


INSTALLATION

Thoroughly clean mounting surface with dry-cleaning solvent (item 4, app D) Mounting surface must be free of all contamination such as oil, grease, dirt, or any foreign matter.

Peel back adhesive paper from plate back.

Mount the plate and apply pressure to the plate surface.

LOCATION	ITEM	ACTION
<div>DISASSEMBLY</div> <div> <div>Protective Entrance Control Module</div> <div>Dome light</div>  </div>		
		Remove screws (1), retainer (2), light lens (3) and dome light gasket (4).
		Remove red lamp (5) by pressing in on the bulb and rotating it counterclockwise. Pull red lamp from socket (6).
		Remove clear lamp (7) by pressing in on the bulb and rotating it counterclockwise. Pull clear lamp from socket (8).
<div>REPAIR</div> <div> <div>Protective Entrance Control Module</div> <div>Dome light</div> <div>Lamps, screws, lens, and dome light gasket</div> </div>		
		Replace if unserviceable.
<div>REASSEMBLY</div> <div> <div>Protective Entrance Control Module</div> <div>Dome light</div> </div>		
		Insert red lamp (5) in socket (6). Aline studs in lamp base with slot in socket. Press in and turn red lamp clockwise until it locks in place.
		Insert clear lamp (7) in socket (8). Aline studs in lamp base with slot in socket. Press in and turn clear lamp clockwise until it locks in place.
		Place gasket (4) on dome light lens (3).
		Place retainer (2) on gasket and aline screw holes.
		Position assembly in place and install screws (1). Tighten securely.

Section VII MAINTENANCE PROCEDURES FOR M59 GAS-PARTICULATE FILTER UNIT

2-13. GENERAL. These instructions are for use by organizational maintenance personnel. They apply to:

- M59 gas-particulate filter unit
- Housing unit
- Main fan
- Airflow valve
- Power distribution unit
- Compartment control module

2-14. M59 GAS-PARTICULATE FILTER UNIT - MAINTENANCE INSTRUCTIONS.

This task covers

- | | |
|-----------------|-------------|
| a. Installation | c. Repair |
| b. Removal | d. Painting |
-

INITIAL SETUP

Tools

General Mechanics Tool
Kit SC5180-90-CL-N26

LOCATION	ITEM	ACTION
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REMOVAL

M59 Gas-Particulate
Filter Unit/Power
Distribution Unit

Green tubing
(nonmetallic)

Unscrew green tube coupling nut (1) from connector (2)

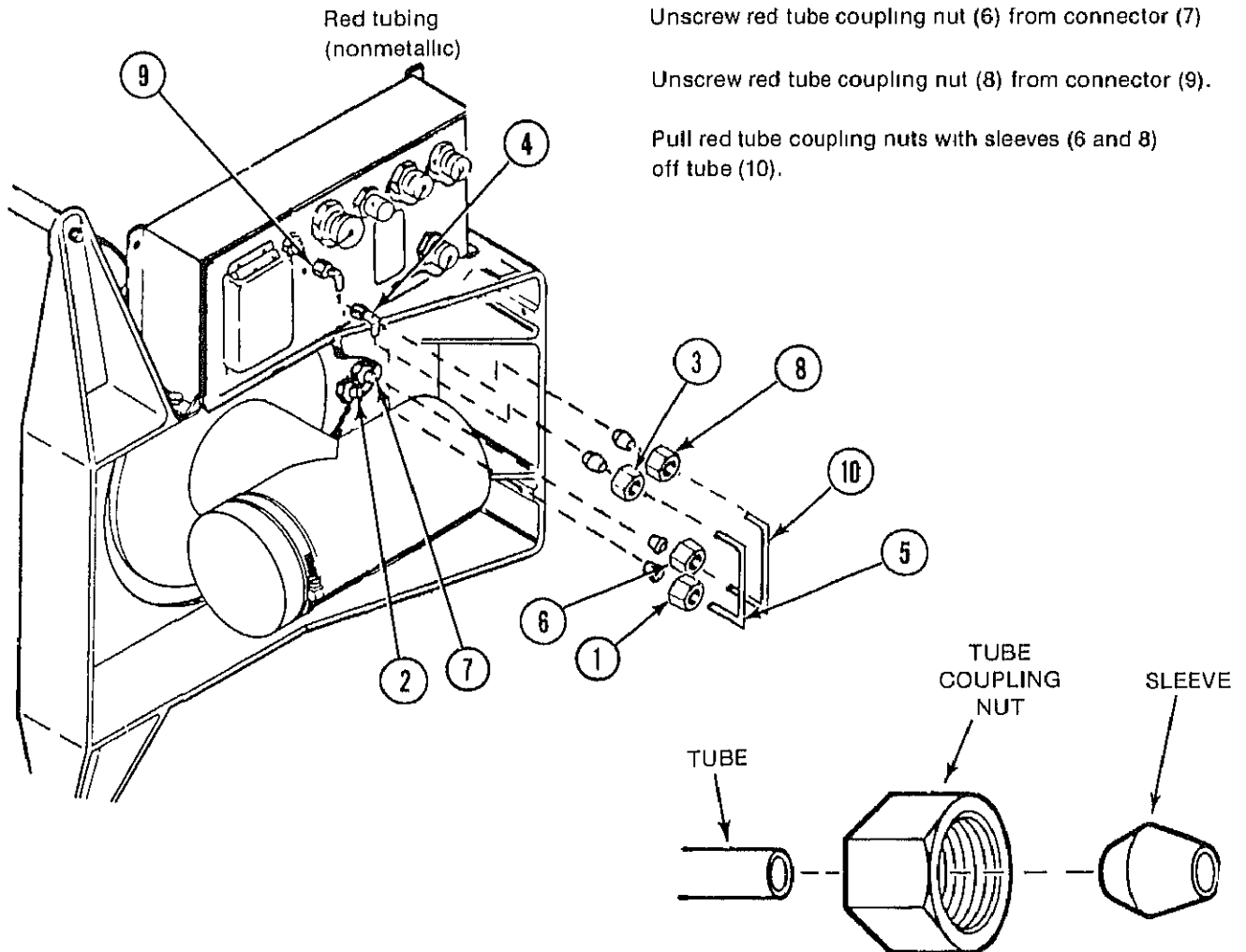
Unscrew green tube coupling nut (3) from connector (4)

Pull green tube coupling nuts with sleeves (1 and 3) off tube (5). See detail A

Unscrew red tube coupling nut (6) from connector (7)

Unscrew red tube coupling nut (8) from connector (9).

Pull red tube coupling nuts with sleeves (6 and 8) off tube (10).



DETAIL A

REPAIR

Tubing
(nonmetallic)

Fabricate tubing. Refer to appendix E, figure E-2

2-14. M59 GAS-PARTICULATE FILTER UNIT - MAINTENANCE INSTRUCTIONS (CONT).

LOCATION

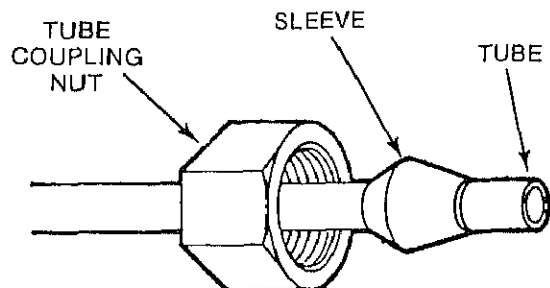
ITEM

ACTION

INSTALLATION

M59 Gas-Particulate
Filter Unit/Power
Distribution Unit

Red tubing
(nonmetallic)



DETAIL A

Push red tube coupling nuts (6 and 8) with sleeves on red tube (10). See detail A.

Push one end of tube (10) into connector (7) and one end into connector (9). RED dot on power distribution unit indicates connector (9).

Push red tube coupling nut (6) with sleeve onto connector (7) and hand tighten.

Push red tube coupling nut (8) with sleeve onto connector (9) and hand tighten.

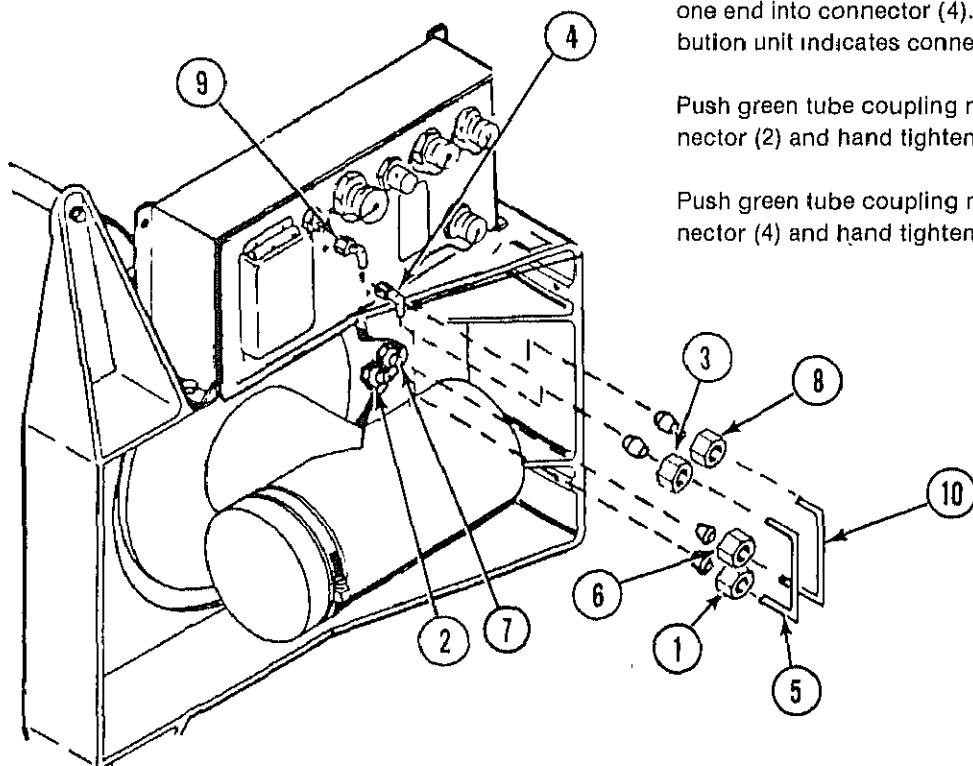
Green tubing
(nonmetallic)

Push green tube coupling nuts (1 and 3) with sleeves on green tube (5). See detail A.

Push one end of green tube (5) into connector (2) and one end into connector (4). GREEN dot on power distribution unit indicates connector (4).

Push green tube coupling nut (1) with sleeve onto connector (2) and hand tighten.

Push green tube coupling nut (3) with sleeve onto connector (4) and hand tighten.



2-14. M59 GAS-PARTICULATE FILTER UNIT - MAINTENANCE INSTRUCTIONS (CONT).

LOCATION	ITEM	ACTION
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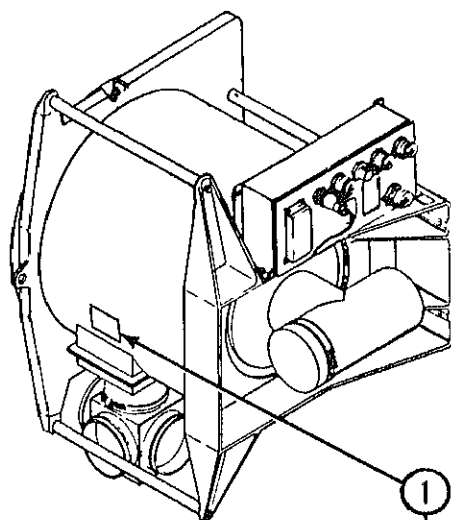
REMOVAL

M59 Gas-Particulate
Filter Unit

Identification
plate

Lift edge of plate with a sharp tool.

Pull plate completely off the mounting surface

INSTALLATION

Thoroughly clean mounting surface with dry-cleaning solvent (item 4, app D) Mounting surface must be free of all contamination such as oil, grease, dirt or any foreign matter

Peel back paper from adhesive backing on plate (1).

Mount plate (1) and apply pressure to plate surface.

PAINTING

Filter housing,
compartment control
module and
power distribution
unit

Touch-up painting is authorized.

Thoroughly clean the surfaces to be repainted. Use ra (item 6, app D) and dry-cleaning solvent (item 4, app I) Paint surfaces with one coat of primer (item 5, app D).

Paint primed surfaces with aliphatic polyurethane coat (item 2, app D).

NOTE

Refer to TM 43-0139 for painting instructions for field use.

2-15. HOUSING UNIT MAINTENANCE INSTRUCTIONS.

This task covers.

- | | | |
|----------------|---------------|-----------------|
| a. Removal | c. Repair | e. Installation |
| b. Disassembly | d. Reassembly | |

INITIAL SETUP

Tools

General Mechanics Tool Kit
SC 5180-90-CL-N26
Torque wrench 0-500 inch-pounds

General Safety Instructions

The unit commander or senior officer in charge of maintenance personnel assigned to remove and dispose of the contaminated gas and particulate filters must prescribe the necessary protective clothing (TM 10-277) to be worn during this operation. He must also prescribe the necessary safety measures to be followed including the decontamination operation (TM 3-220) that must be performed before the new filters are installed

LOCATION	ITEM	ACTION
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REMOVAL

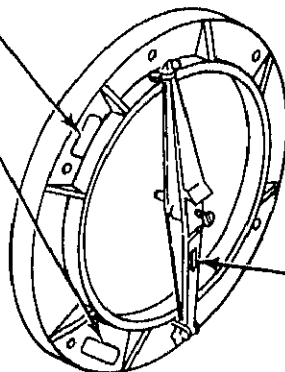
Access cover

Instruction plates

Lift edge of plates (1, 2 or 3) with a sharp tool. Pull plates completely off the mounting surface.

WARNING
TORQUE OUTER COVER BOLTS
180 to 200 INCH POUNDS

WARNING
DO NOT REMOVE COVERS TO SERVICE
COMPONENTS AFTER TOXIC EXPOSURE
WITHOUT OBSERVING PROPER
HANDLING PROCEDURES



WARNING
TIGHTEN UNTIL
SLEEVE IS FLUSH
WITH TOP SURFACE

INSTALLATION

Thoroughly clean mounting surface with dry-cleaning solvent (item 4, app D). Mounting surface must be free of all contamination such as oil, grease, dirt or any foreign matter

Peel back paper from adhesive backing on plates (1, 2, or 3)

Mount the plates (1, 2, or 3) and apply pressure to the plate surface

LOCATION

ITEM

ACTION

REMOVAL

NOTE

The unit commander or senior officer in charge of maintenance personnel assigned to remove and dispose of the contaminated gas and particulate filters must prescribe the necessary protective clothing (TM 10-277) to be worn during this operation. He must also prescribe the necessary safety measures to be followed including the decontamination operation (TM 3-220) that must be performed before the new filters are installed.

Housing
unitParticulate
filters

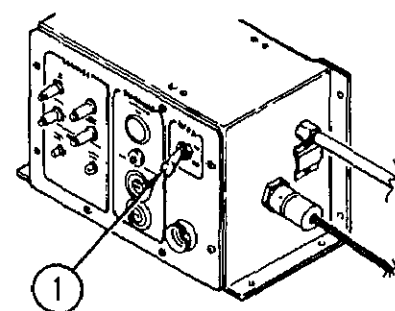
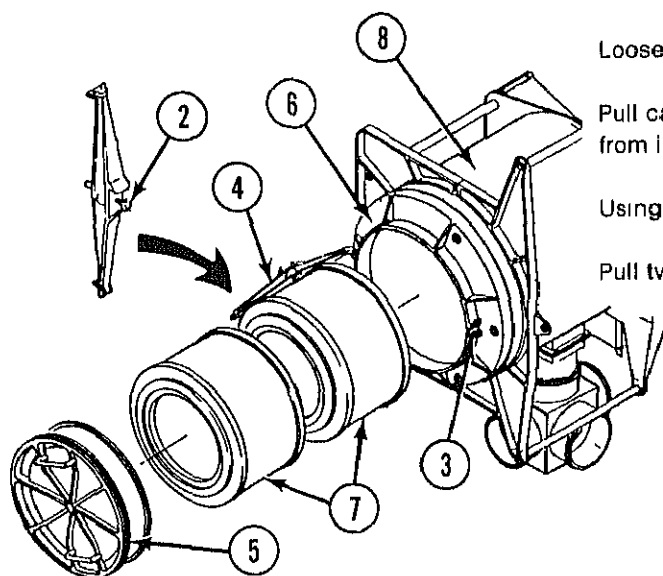
Set POWER switch (1) on compartment control module to OFF.

Loosen screw (2).

Pull catch (3) outward and swing retaining bar (4) away from inner cover (5).

Using handles, pull inner cover (5) from access cover (6).

Pull two particulate filters (7) from filter housing (8).



CCM

INSTALLATION

Particulate
filters

Place the particulate filters (7) in filter housing (8), either end first.

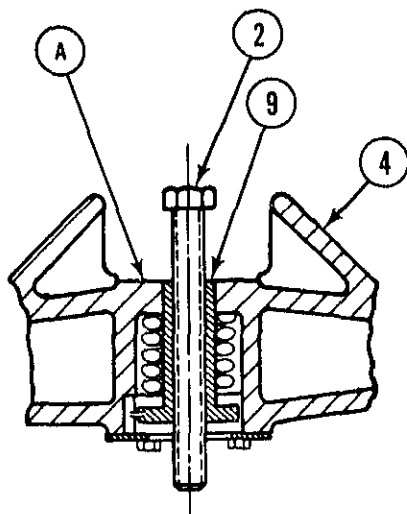
Grasp inner cover by the handles and place it in the access cover (6).

Swing retaining bar (4) up across inner cover and engage end of bar with catch (3).

WARNING

Filter seals must be properly seated to prevent bypass of contaminated air.

Tighten screw (2) until sleeve (9) is flush with top surface (A) of retaining bar (4).



2-15. HOUSING UNIT — MAINTENANCE INSTRUCTIONS (CONT).

LOCATION	ITEM	ACTION
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REMOVAL

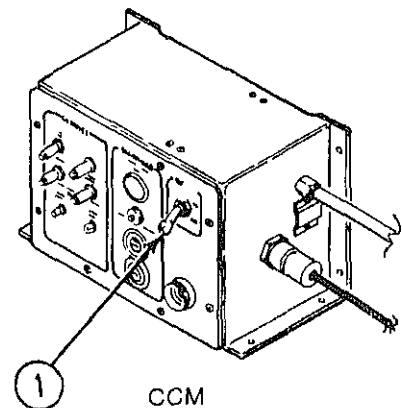
NOTE

The unit commander or senior officer in charge of maintenance personnel assigned to remove and dispose of the contaminated gas and particulate filters must prescribe the necessary protective clothing (TM 10-277) to be worn during this operation. He must also prescribe the necessary safety measures to be followed including the decontamination operation (TM 3-220) that must be performed before the new filters are installed.

Housing
unit

Gas and
particulate
filters

Set POWER switch (1) on the compartment control module to OFF.

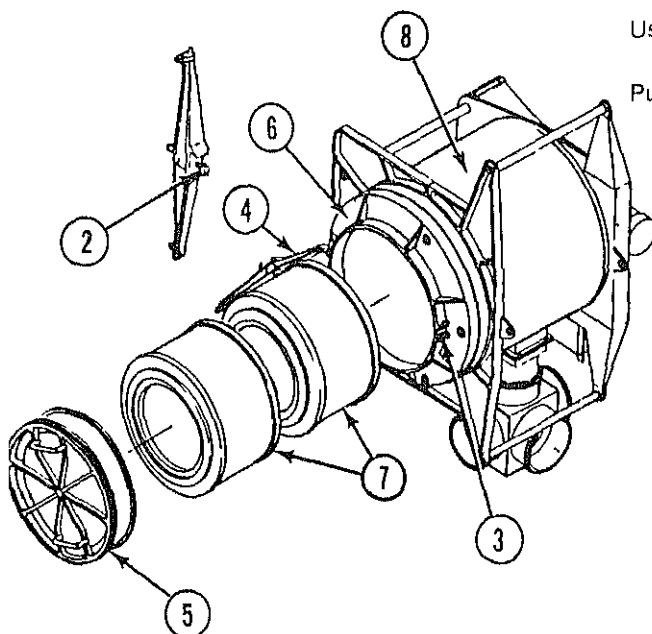


Loosen screw (2)

Pull catch (3) outward and swing retaining bar (4) away from inner cover (5).

Using handles, pull inner cover (5) from access cover (6).

Pull the two particulate filters (7) from filter housing (8)



LOCATION	ITEM	ACTION
----------	------	--------

REMOVAL (CONT)

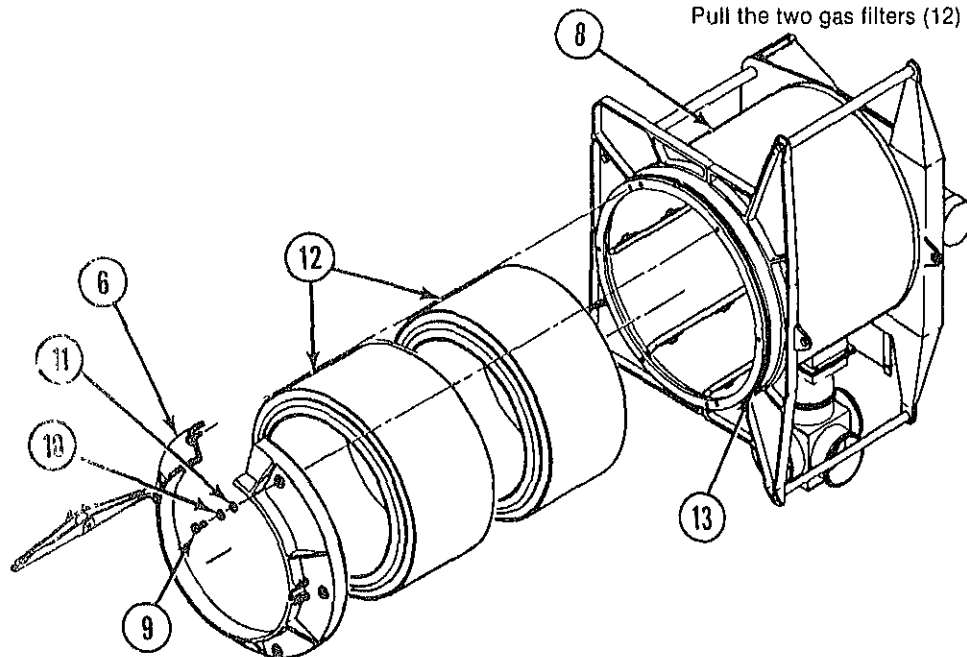
Housing
Unit

Gas and
particulate
filters

Remove screws (9), aluminum washer (10), and washer (11).

Pull access cover (6) from housing (8).

Pull the two gas filters (12) from filter housing (8).



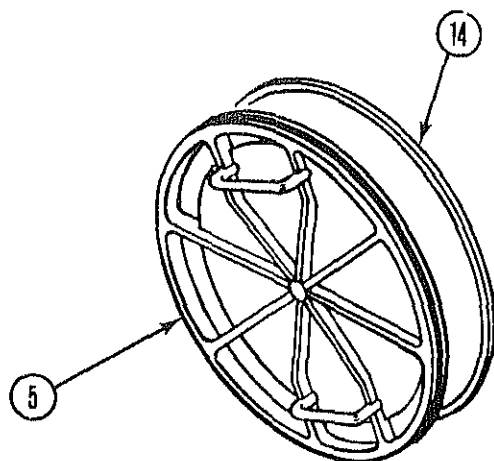
REPAIR

Filter Housing/
Inner Cover

Seals

Replace access cover seal (13) on filter housing or seal (14) on inner cover (5) if unserviceable.

- Remove seal from groove.
- Clean groove using solvent (item 4, app D).
- Install seal in groove and butt end using adhesive (item 1, app D).



2-15. HOUSING UNIT — MAINTENANCE INSTRUCTIONS (CONT).

LOCATION

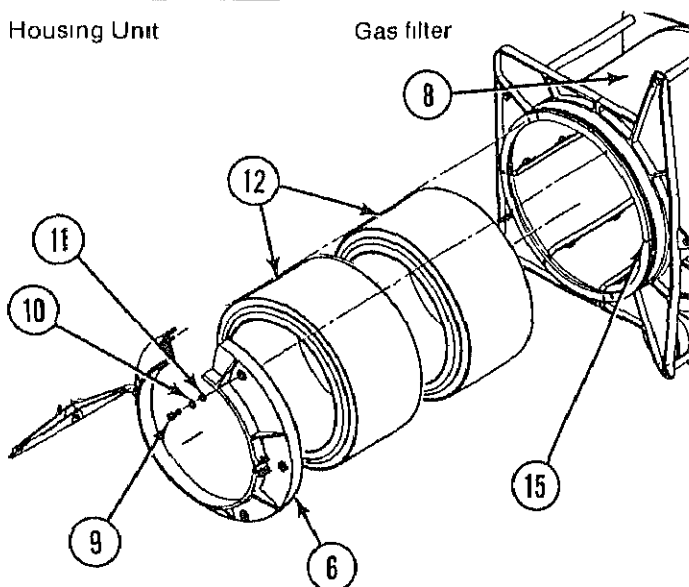
ITEM

ACTION

INSTALLATION

Housing Unit

Gas filter



Place the two gas filters (12) in filter housing (8), either end first.

Position access cover (6) on filter housing. Align guide pin with guide hole (15). Push access cover (6) into place.

NOTE

To prevent binding of outer access cover against filter housing rim, screws must be tightened alternately in a criss-cross pattern.

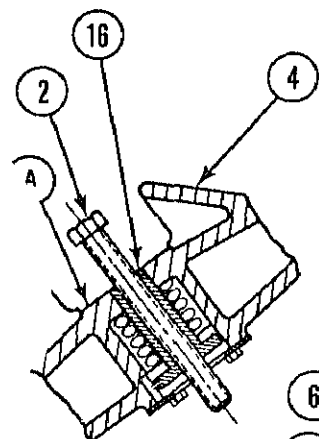
Install washers (11), aluminum washers (10), and screws (9) finger tight.

WARNING

Filter seals must be properly seated to prevent bypass of contaminated air.

CAUTION

Be sure to observe torque values for the torque wrench being used.



Particulate filter

Preliminary torque In a crisscross pattern, torque screws to 8-10 foot-pounds (100 - 125 inch-pounds).

Final torque In a crisscross pattern, torque screws to 15-16 foot-pounds (180 - 200 inch-pounds).

Place the two particulate filters (7) in gas filters (12) either end first.

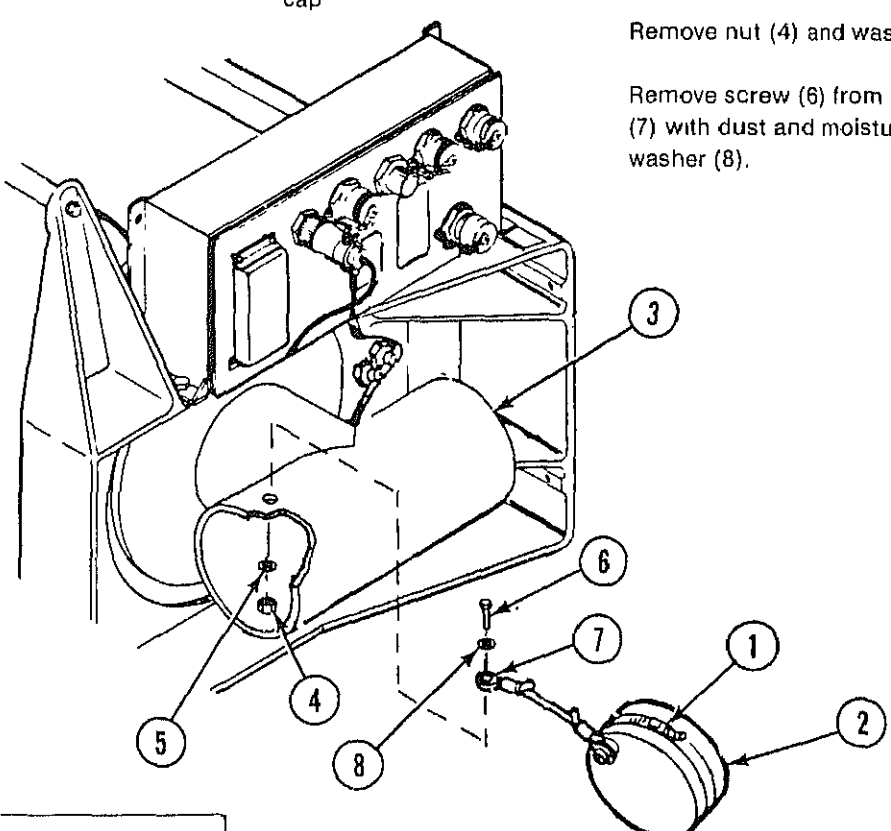
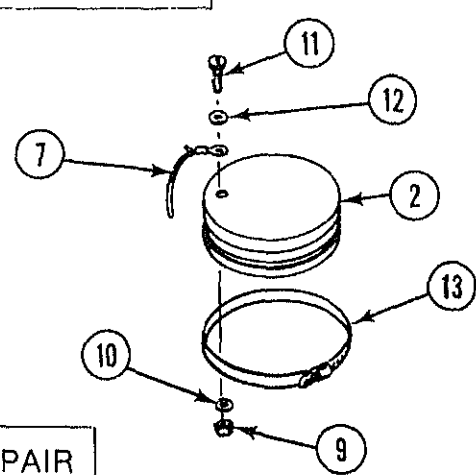
Grasp inner cover (5) by the handles and place it in the access cover (6).

Swing retaining bar (4) up across inner cover and engage end of bar with catch (3).

WARNING

Filter seals must be properly seated to prevent bypass of contaminated air.

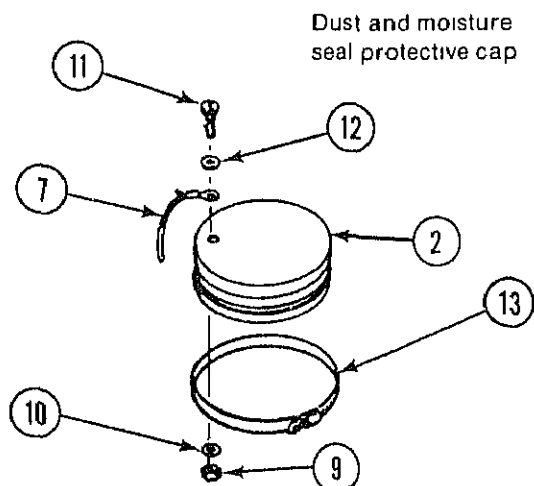
Tighten screw (2) until sleeve (16) is flush with top surface (A) of retaining bar (4).

LOCATION	ITEM	ACTION
REMOVAL		
Housing Unit	Dust and moisture seal protective cap	Loosen moisture seal protective cap adjusting screw (1) and remove protective cap (2) from inlet tee (3)
		Remove nut (4) and washer (5) from screw (6)
		Remove screw (6) from inlet tee (3), loop of support cable (7) with dust and moisture seal protective cap (2), and washer (8).
		
DISASSEMBLY		
		Remove nut (9) and washer (10) from screw (11).
		Remove screw (11) from rubber cap (2), loop of support cable (7), and washer (12).
		Remove hose clamp (13) from rubber cap (2)
		
REPAIR		
	Support cable	Fabricate support cable. Refer to appendix E, figure E

2-15. HOUSING UNIT — MAINTENANCE INSTRUCTIONS (CONT).

LOCATION	ITEM	ACTION
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REASSEMBLY



Insert screw (11) in washer (12), loop of support cable (7) and hole in rubber cap (2)

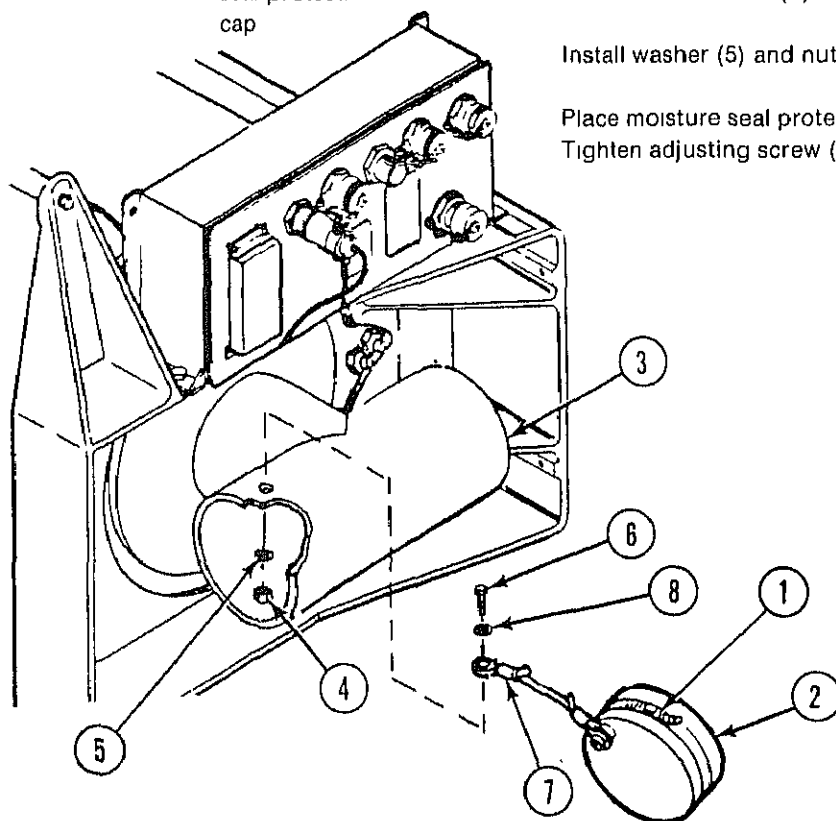
Install washer (10) and nut (9). Tighten securely

Install hose clamp (13) in groove in rubber cap (2).

INSTALLATION

Housing
Unit

Dust and moisture
seal protective
cap



Insert screw (6) in washer (8), loop of support cable (7), and hole in inlet tee (3)

Install washer (5) and nut (4). Tighten securely.

Place moisture seal protective cap (2) on inlet tee (3). Tighten adjusting screw (1).

2-16. MAIN FAN - MAINTENANCE INSTRUCTIONS.

This task covers

- a. Removal
- b. Installation

INITIAL SETUP

Tools
General Mechanics Tool Kit
SC 5180-90-CL-N26

LOCATION	ITEM	ACTION
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REMOVAL

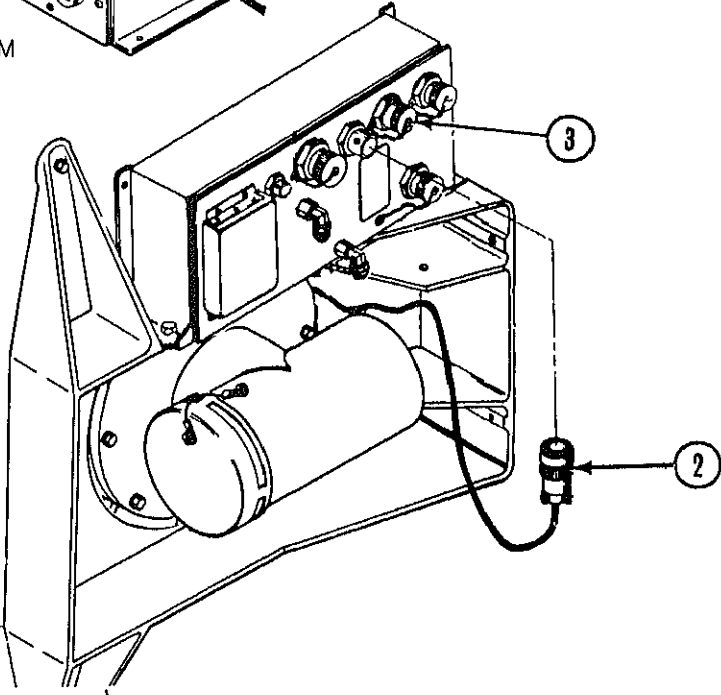
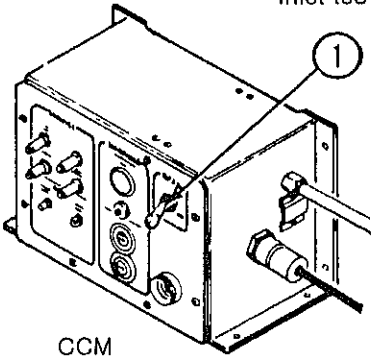
Housing
Unit

Main fan/
inlet tee

Set POWER switch (1) on compartment control
module to OFF.

Turn off power source.

Disconnect electrical cable plug P4 (2) from power distri-
bution panel connector J4 (3).



2-16. MAIN FAN-MAINTENANCE INSTRUCTIONS (CONT).

LOCATION	ITEM	ACTION
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REMOVAL (CONT)

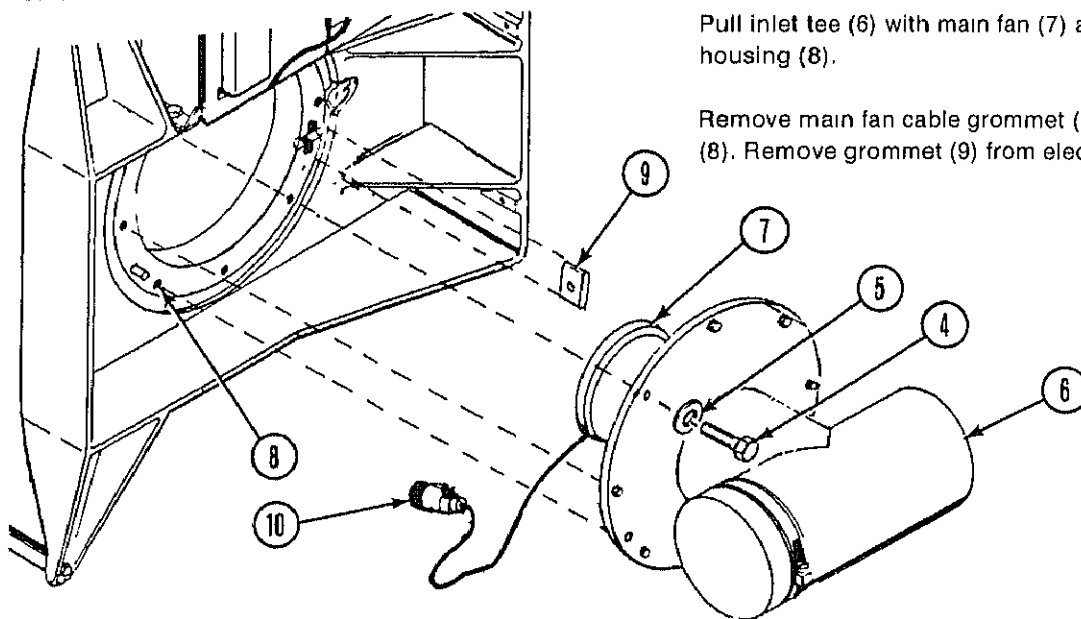
Housing
Unit

Main fan/
inlet tee

Remove screws (4) and washers (5)

Pull inlet tee (6) with main fan (7) attached from filter housing (8).

Remove main fan cable grommet (9) from filter housing (8). Remove grommet (9) from electrical cable (10)

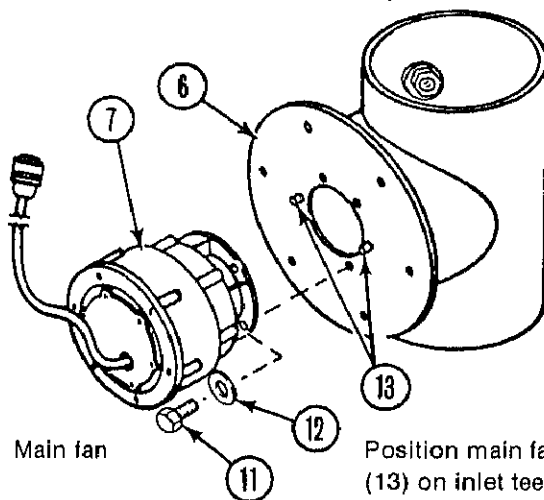


Inlet Tee

Main fan

Remove screws (11) and washers (12)

Separate main fan (7) from inlet tee (6).



INSTALLATION

Inlet Tee

Main fan

Position main fan (7) up to inlet tee (6). Aline guide pins (13) on inlet tee with guide pin holes in main fan. Push main fan against inlet tee.

Install washers (12) and screws (11). Tighten securely.

LOCATION	ITEM	ACTION
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INSTALLATION (CONT)

housing

Main fan/

Install grommet (9) on cable (10) about 10 inches from motor

Inlet

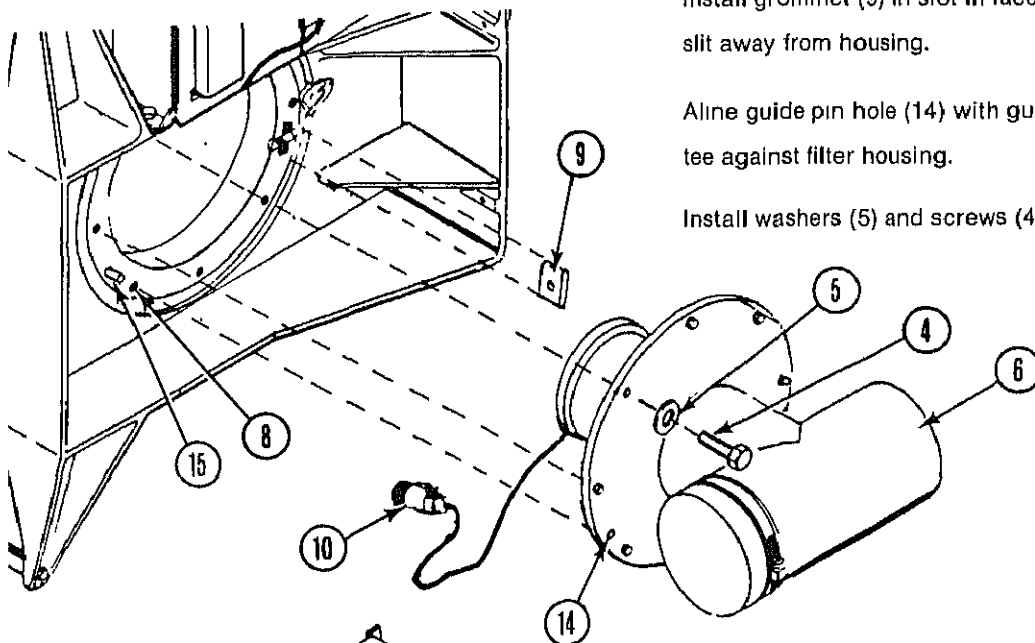
inlet tee

Position inlet tee (6) up to filter housing (8)

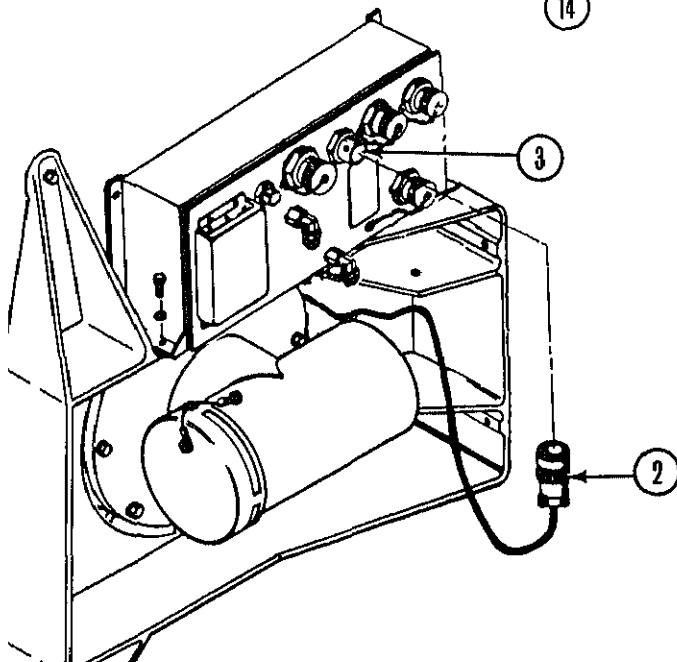
Install grommet (9) in slot in face of filter housing (8) with slit away from housing.

Align guide pin hole (14) with guide pin (15). Push inlet tee against filter housing.

Install washers (5) and screws (4). Tighten securely



Connect electrical cable plug P4 (2) to power distribution panel connector J4 (3).



2-17. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS.

This task covers

- | | |
|----------------|-----------------|
| a. Removal | d. Reassembly |
| b. Disassembly | e. Installation |
| c. Repair | |

INITIAL SETUP

Tools

General Mechanics Tool Kit
SC 5180-90-CL-N26

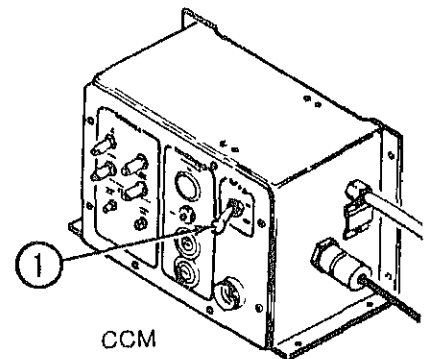
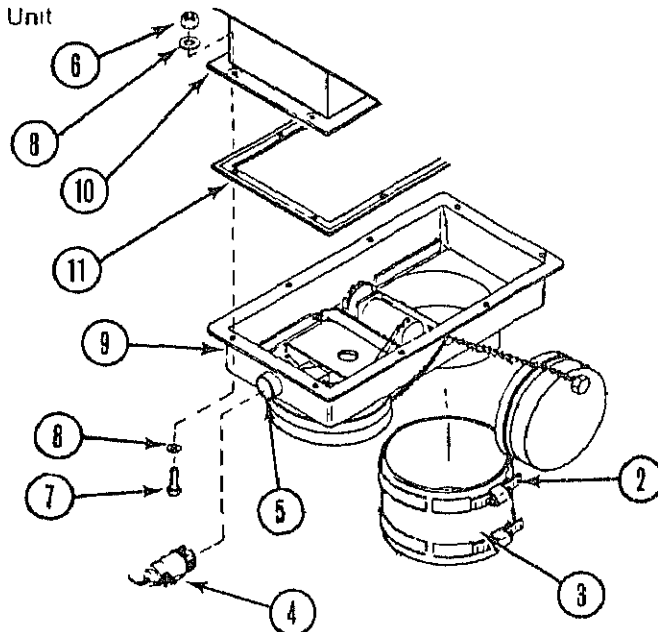
LOCATION	ITEM	ACTION
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REMOVAL

Housing
Unit

Airflow valve

Set POWER switch (1) on compartment control module to OFF. Turn off power source



Loosen hose clamp adjusting screw (2) and remove adapter mounting hose (3).

Disconnect electrical plug P15 (4) from airflow valve connector J15 (5).

Remove nuts (6), screws (7), and washers (8).

Separate airflow valve (9) from filter unit (10)

REPAIR

Gasket

Replace airflow valve gasket (11) if unserviceable.

Remove gasket from flange on airflow valve

Clean flange using dry-cleaning solvent (item 4, app D).

Peel back paper from adhesive back

Install gasket.

LOCATION	ITEM	ACTION
DISASSEMBLY		
Airflow Valve	Dust and moisture seal protective cap	Remove nut (12) from screw (13). Remove screw (13), support cable loop (14), washer (15), support cable loop (16), and washer (17).
		Remove nut (18) and washer (19) from screw (20).
		Remove screw (20) from rubber cap (21), support cable loop (22), and washer (23).
		Loosen adjusting screw (25), and remove hose clamp (24) from rubber cap (21).
REPAIR		
	Support cable	Fabricate support cable. Refer to appendix E, figure E-1.
REASSEMBLY		
Airflow Valve	Dust and moisture seal protective cap	Install screw (20) in washer (23), loop of support cable (22), hole in rubber cap (21), washer (19), and nut (18). Tighten nut securely.
		Install hose clamp (24) in groove in rubber cap (21). Tighten adjusting screw (25) slightly.
		Install screw (13) in washer (17), loop of support cable (16), washer (15), support cable (14), hole in airflow valve, and nut (12). Tighten nut securely.

2-17. AIRFLOW VALVE - MAINTENANCE INSTRUCTIONS (CONT).

LOCATION	ITEM	ACTION
----------	------	--------

INSTALLATION

Housing Unit

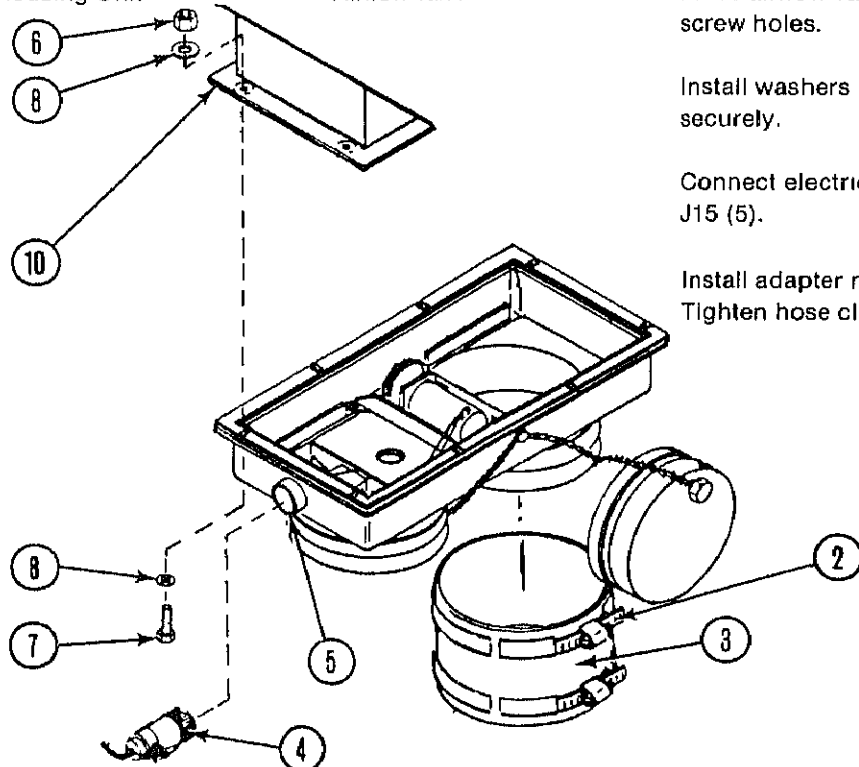
Airflow valve

Place airflow valve against filter housing (10). Align screw holes.

Install washers (8), screws (7), and nuts (6). Tighten securely.

Connect electrical plug P15 (4) to airflow valve connector J15 (5).

Install adapter mounting hose (3) on airflow valve. Tighten hose clamp adjusting screw (2).



REMOVAL

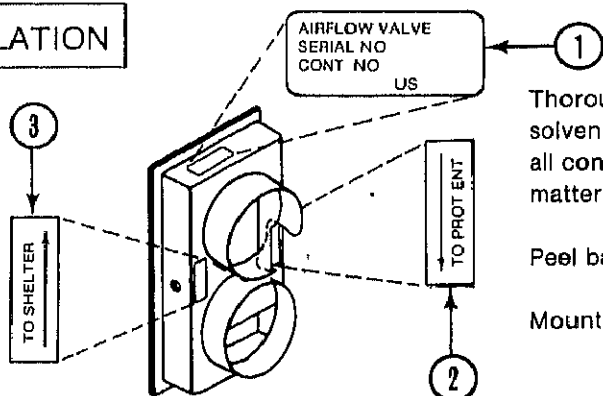
Airflow Valve

Identification plate
and instruction plates

Lift edge of plate (1, 2, or 3) with a sharp tool

Pull plate completely off the mounting surface

INSTALLATION



Thoroughly clean mounting surface with dry-cleaning solvent (item 4, app D). Mounting surface must be free of all contamination such as oil, grease, dirt or any foreign matter.

Peel back paper from adhesive backing on plate.

Mount plate and apply pressure to plate surface

2-18. POWER DISTRIBUTION UNIT - MAINTENANCE INSTRUCTIONS.

This task covers

- a. Removal
- b. Installation

INITIAL SETUP

Tools

General Mechanics Tool Kit
SC 5180-90-CL-N26

General Safety Instructions

If filter unit is operating, 208V is present
at the indicator lamp socket.

LOCATION	ITEM	ACTION
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REMOVAL

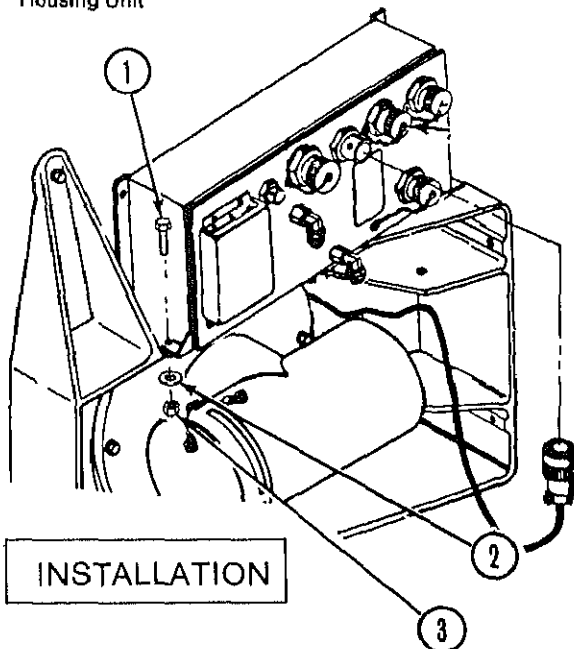
PATRIOT
Housing Unit

Power distribution unit

Turn off power source.

Disconnect cables from PDU.

Remove bolts (1), washers (2), and nuts (3).



INSTALLATION

Install power distribution unit using bolts (1),
washers (2), and nuts (3).

Connect cables to PDU.

Turn power source on.

2-18. POWER DISTRIBUTION UNIT - MAINTENANCE INSTRUCTIONS (CONT).

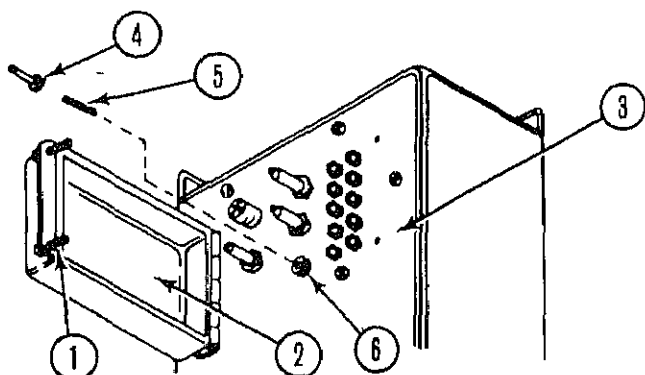
LOCATION	ITEM	ACTION
----------	------	--------

REMOVAL

Power Distribution Panel

Glow lamp

Loosen screws (1)



Open access cover (2) on power distribution panel (3).

Unscrew lens (4).

WARNING

If filter unit is operating, 208 V is present at the indicator lamp socket.

Remove glow lamp (5) from indicator lamp socket (6).

INSTALLATION

Insert glow lamp (5) in lens (4).

Screw lens (4) into indicator lamp socket (6)

Close access cover (2) against panel (3) and secure with screws (1)

REMOVAL

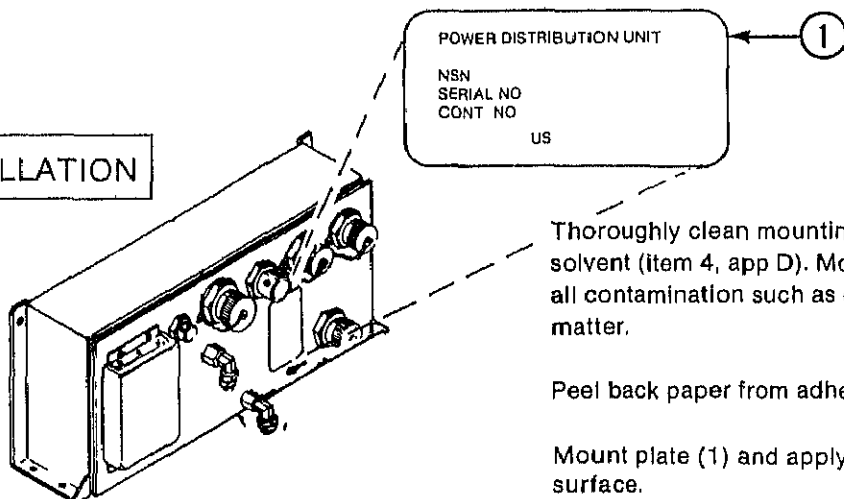
Power Distribution Panel

Identification plate

Lift edge of plate (1) with a sharp tool.

Pull plate completely off the mounting surface.

INSTALLATION



Thoroughly clean mounting surface with dry-cleaning solvent (item 4, app D). Mounting surface must be free of all contamination such as oil, grease, dirt or any foreign matter.

Peel back paper from adhesive backing on plate (1).

Mount plate (1) and apply pressure to plate surface.

2-19. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS.

This task covers

- a. Removal
- b. Repair

- c. Installation

INITIAL SETUP

Tools

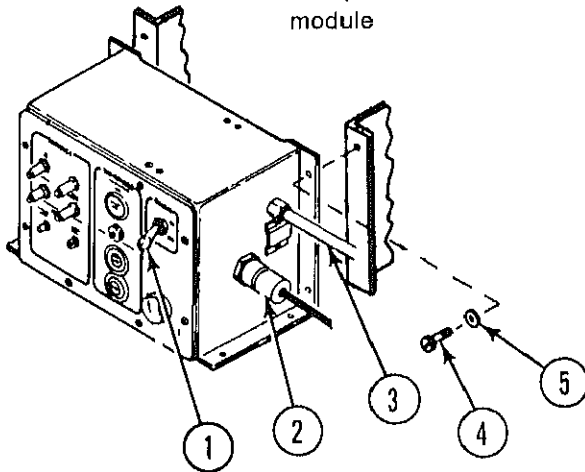
General Mechanics Tool Kit
SC 5180-90-CL-N26

LOCATION	ITEM	ACTION
----------	------	--------

REMOVAL

PATRIOT

Compartment control
module



Set POWER switch (1) on compartment control module to OFF. Turn off Power at source.

Disconnect electrical cable plug P1 (2) from compartment control module.

Pull off pressure hose (3).

Remove screws (4), washers (5), and compartment control module from mounting brackets

REPAIR

Hose

Fabricate replacement hose (fig. E-3B, app E).

INSTALLATION

Compartment control
module

Place compartment control module against mounting brackets and align with screw holes.

Install washers (4) and screws (5). Tighten securely.

Install pressure hose (3).

Connect electrical cable plug P1 (2) to connector J1 on compartment control module.

2-19. COMPARTMENT CONTROL MODULE - MAINTENANCE INSTRUCTIONS (CONT).

LOCATION

ITEM

ACTION

REMOVAL

Compartment Control
Module

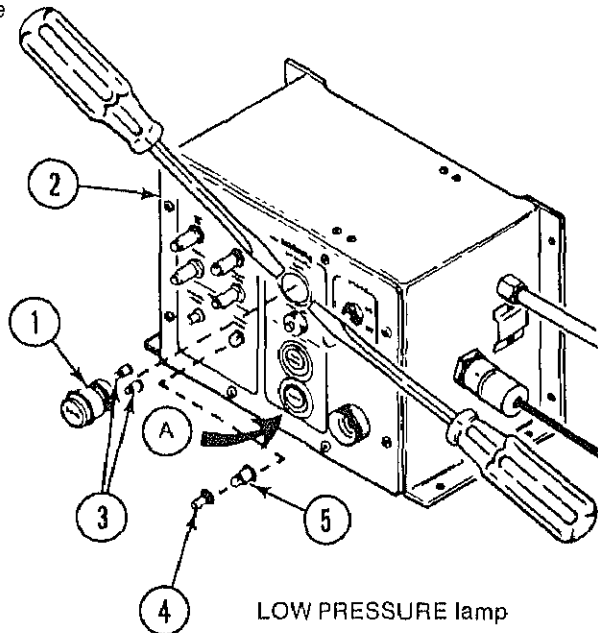
MASK lamp

Using two screwdrivers, gently pry lens (1) from control panel (2)

NOTE

Observe the location of lamps in the lens
Lamps must be re-installed in the same
sockets

Pull lamps (3) from lens (1)



LOW PRESSURE lamp

Same as MASK lamp.

OCCUPIED lamp

Same as MASK lamp

CHANGE FILTER lamp

Unscrew lens (4) Remove lamp (5)

INSTALLATION

MASK lamp

Insert lamps (3) into lens (1). Use the same lamp socket
that lamps were removed from.

Insert lens (1) into control panel (2), as shown in detail
Press lens into panel til it snaps into place.

LOW PRESSURE lamp

Same as MASK lamp.

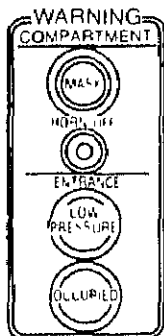
OCCUPIED lamp

Same as MASK lamp.

CHANGE FILTER lamp

Insert lamp (5) into lens (4).

Screw lens (4) into control panel (2)



DETAIL

A

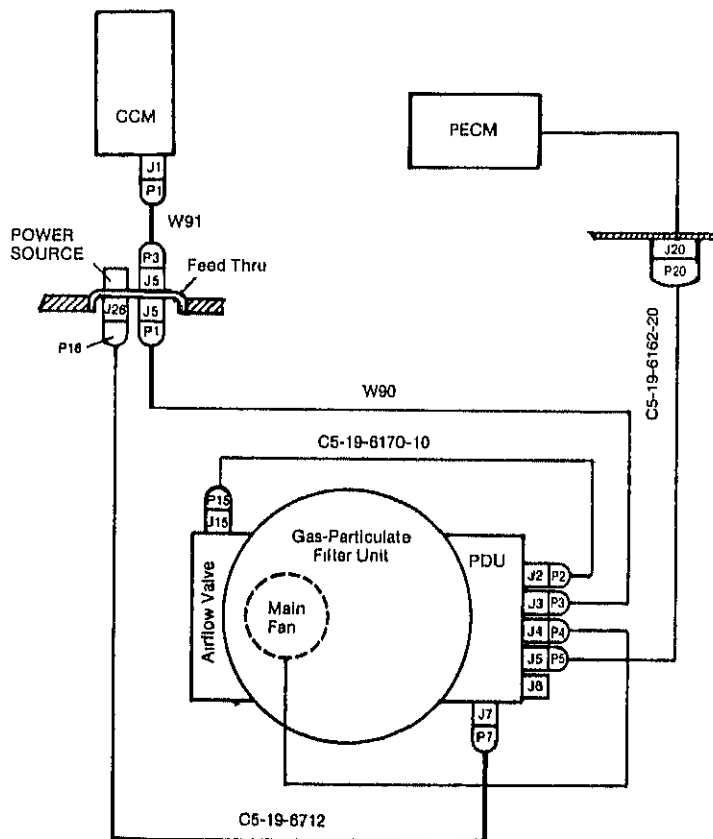
Section VIII MAINTENANCE PROCEDURES FOR M265 INSTALLATION KIT

- 2-20. **GENERAL.** These instructions are for use by organizational maintenance personnel. They apply to:
- Cables
 - Air duct hoses
 - Transition

2-21. CABLE - MAINTENANCE INSTRUCTIONS.

NOTE:

Use The Cable Routing Diagram Below To Locate Each Of The Five Cables.



SPECIAL PURPOSE ELECTRICAL CABLE ROUTING DIAGRAM

2-22. CABLE C5-19-6162-20 - MAINTENANCE INSTRUCTIONS.

This task covers

- | | |
|-----------|----------------|
| a Removal | c Replace |
| b Test | d Installation |

INITIAL SETUP

Test Equipment
Multimeter

LOCATION	ITEM	ACTION
----------	------	--------

REMOVAL

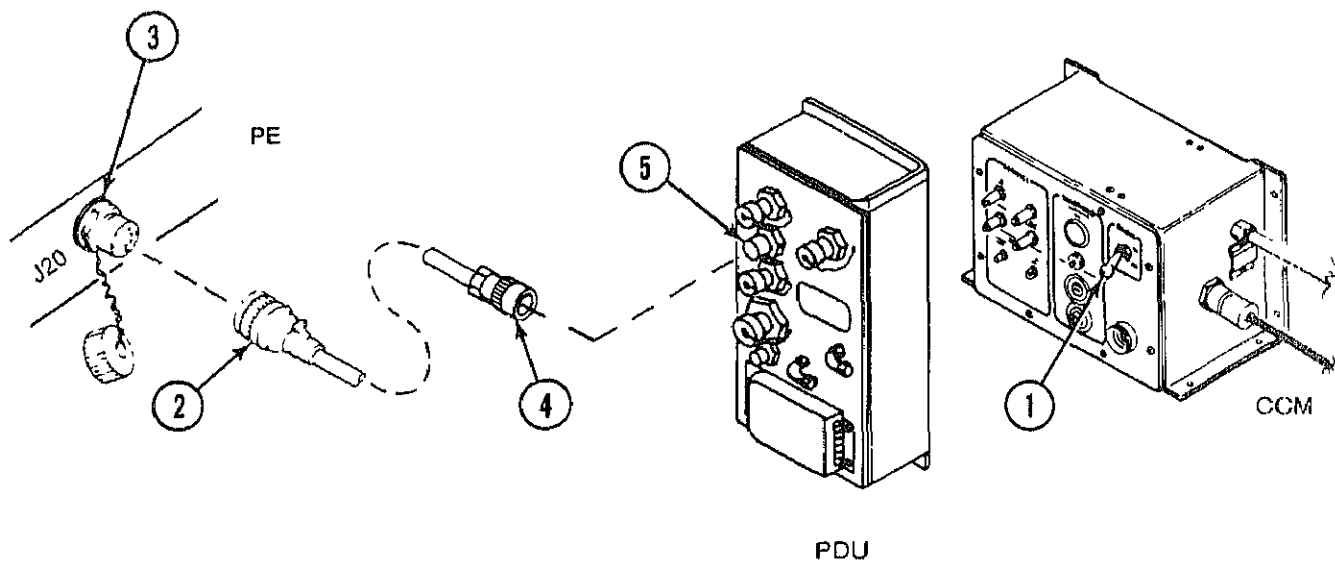
M14 Protective
Entrance and
Power Distribution
Unit

Cable C5-19-6162-20

Set compartment control module POWER switch (1)
to OFF.
Shut down power source

Disconnect electrical cable plug P20 (2) from protective
entrance connector J20 (3)

Disconnect electrical cable plug P5 (4) from power distri-
bution unit connector J5 (5)



LOCATION

ITEM

ACTION

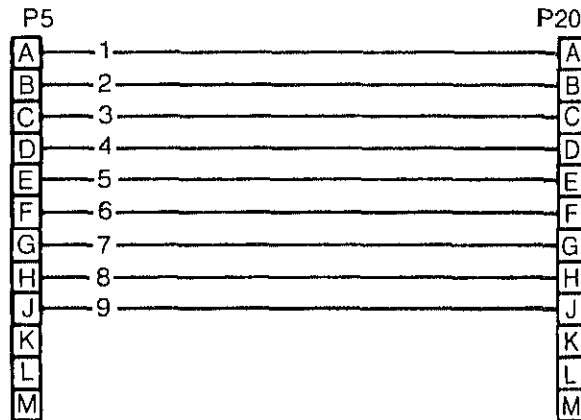
TEST

Cable C5-19-6162-20

Check continuity of each wire between P5 and P20.

NOTE

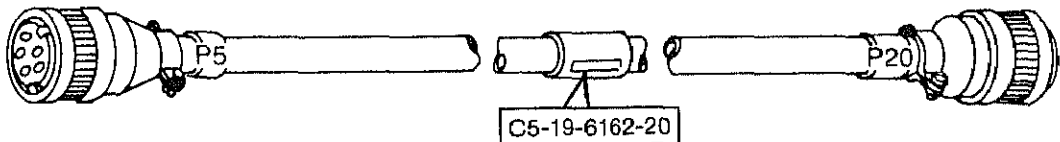
Use multimeter and cable C5-19-6162-20 wiring diagram.



C5-19-6162-20
CABLE ASSEMBLY WIRING DIAGRAM

Cable C5-19-6162-20

Replace cable if it fails continuity check



2-22. CABLE C5-19-6162-20 - MAINTENANCE INSTRUCTIONS (CONT).

LOCATION	ITEM	ACTION
----------	------	--------

INSTALLATION

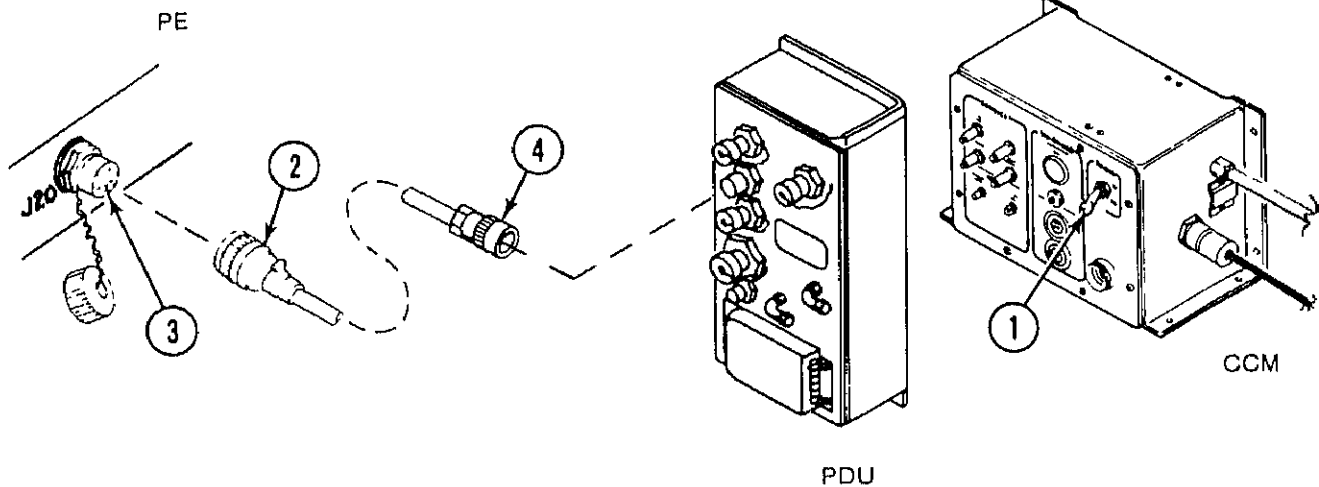
M14 Protective
Entrance and
Power Distribution
Unit

Cable C5-19-6162-20

Set POWER switch (1) on compartment control module to OFF. Turn off power source.

Connect electrical cable plug P5 (4) to power distribution unit connector J5 (5).

Connect electrical cable plug P20 (2) to protective entrance connector J20 (3).



2-23. CABLE C5-19-6170-10 - MAINTENANCE INSTRUCTIONS.

This task covers

- a Removal

b Test
- c Replace

d Installation

INITIAL SETUP

Test Equipment
Multimeter

LOCATION	ITEM	ACTION
----------	------	--------

REMOVAL

Power Distribution
Unit and
Airflow Valve

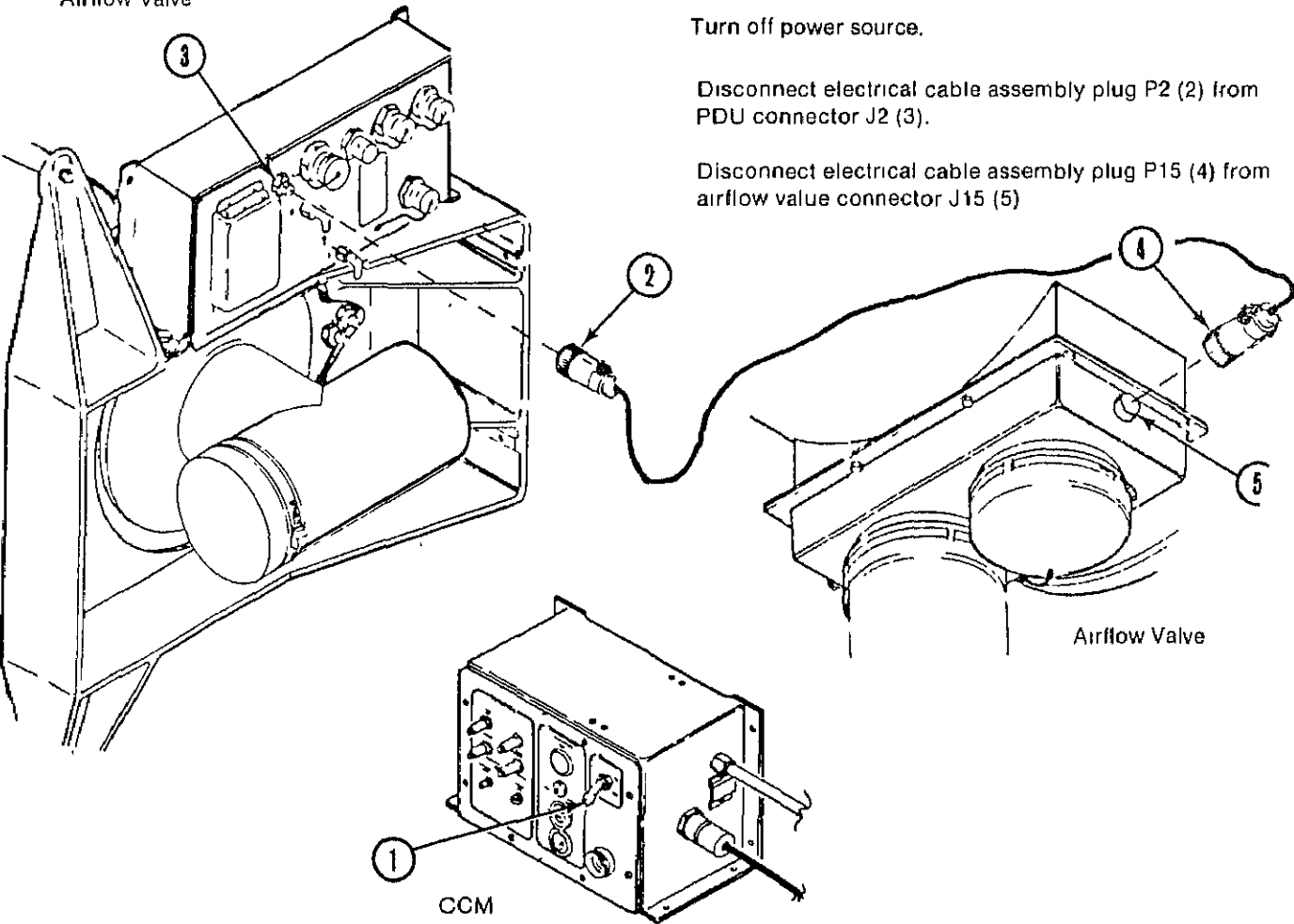
Cable C5-19-6170-10

Set compartment control module POWER switch (1)
to OFF

Turn off power source.

Disconnect electrical cable assembly plug P2 (2) from
PDU connector J2 (3).

Disconnect electrical cable assembly plug P15 (4) from
airflow valve connector J15 (5)



2-23. CABLE C5-19-6170-10 - MAINTENANCE INSTRUCTIONS (CONT).

LOCATION	ITEM	ACTION
----------	------	--------

TEST

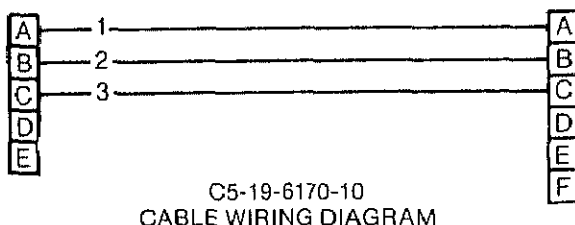
Power Distribution Unit
and Airflow Valve

Cable C5-19-6170-10

Check continuity of each wire between P2 and P15.

NOTE

Use multimeter and cable C5-19-6170-10
wiring diagram

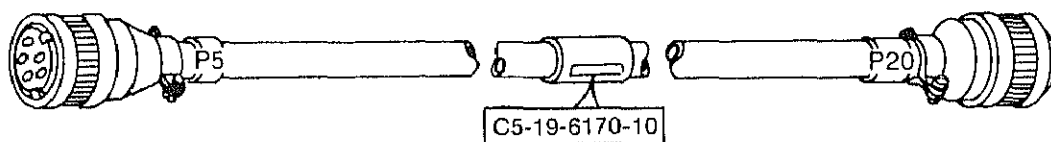


REPLACE

Power Distribution Unit
and Airflow Valve

Cable C5-19-6170-10

Replace cable if it fails continuity check



LOCATION

ITEM

ACTION

INSTALLATION

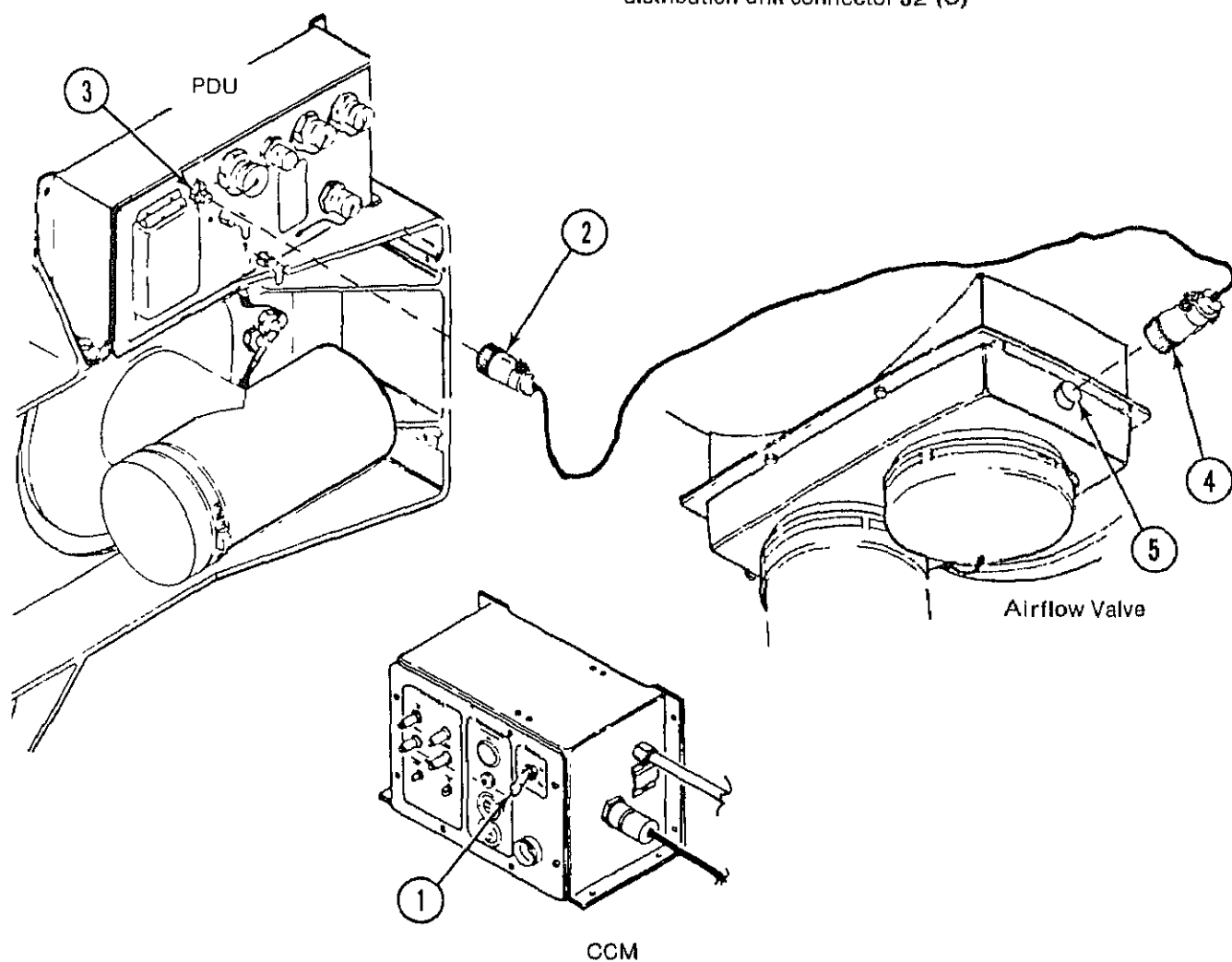
Power Distribution
Unit and Airflow
Valve

Cable C5-19-6170-10

Set POWER switch (1) on compartment control module to OFF. Turn off power source.

Connect electrical cable assembly plug P15 (4) to airflow valve connector J15 (5).

Connect electrical cable assembly plug P2 (2) to power distribution unit connector J2 (3).



2-24. CABLE W91 - MAINTENANCE INSTRUCTIONS.

This task covers

- | | |
|------------|-----------------|
| a. Removal | c. Replace |
| b. Test | d. Installation |

INITIAL SETUP

Test Equipment

Multimeter

LOCATION	ITEM	ACTION
----------	------	--------

REMOVAL

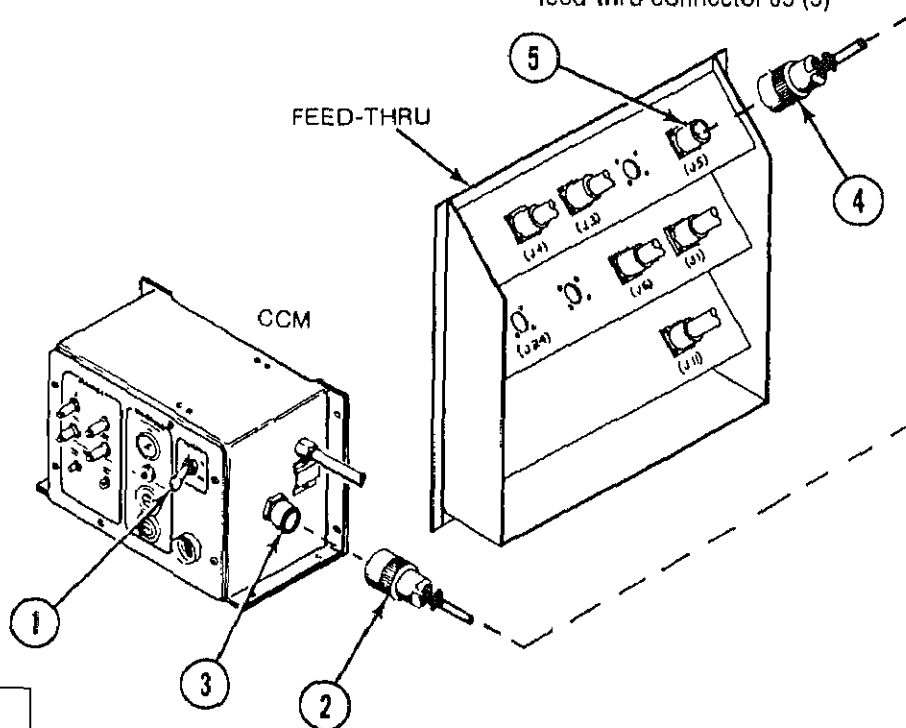
Compartment Control
Module and Feed-Thru
Connector

Cable W91

Set compartment control module POWER switch (1) to OFF. Turn off power source.

Disconnect electrical cable assembly plug P1 (2) from compartment control module connector J1 (3).

Disconnect electrical cable assembly plug P3 (4) from feed-thru connector J5 (5).



TEST

Check continuity of each wire between P1 and P3.

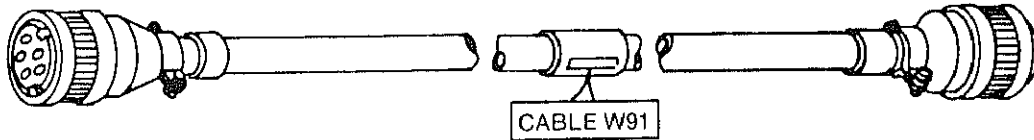
LOCATION	ITEM	ACTION
----------	------	--------

REPLACE

Compartment
Control Module and
Feed-Thru
Connector

Cable W91

Replace cable if it fails continuity check



INSTALLATION

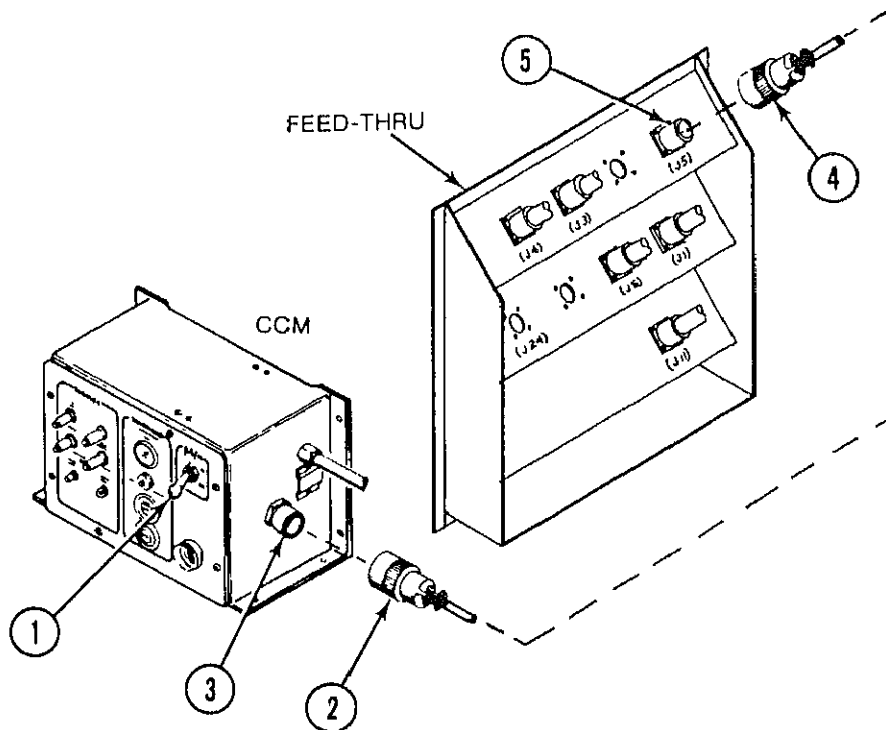
Compartment
Control Module and
Feed-Thru Connector

Cable W91

Set compartment control module POWER switch
(1) to OFF. Turn power off source

Connect electrical cable assembly plug P3 (4) to feed-
thru connector J5 (5)

Connect electrical cable assembly plug P1 (2) to
compartment control module connector J1 (3)



2-25. CABLE W90 - MAINTENANCE INSTRUCTIONS.

This task covers

- a Removal
- b Test
- c. Replace
- d. Installation

INITIAL SETUP

Test Equipment
Multimeter

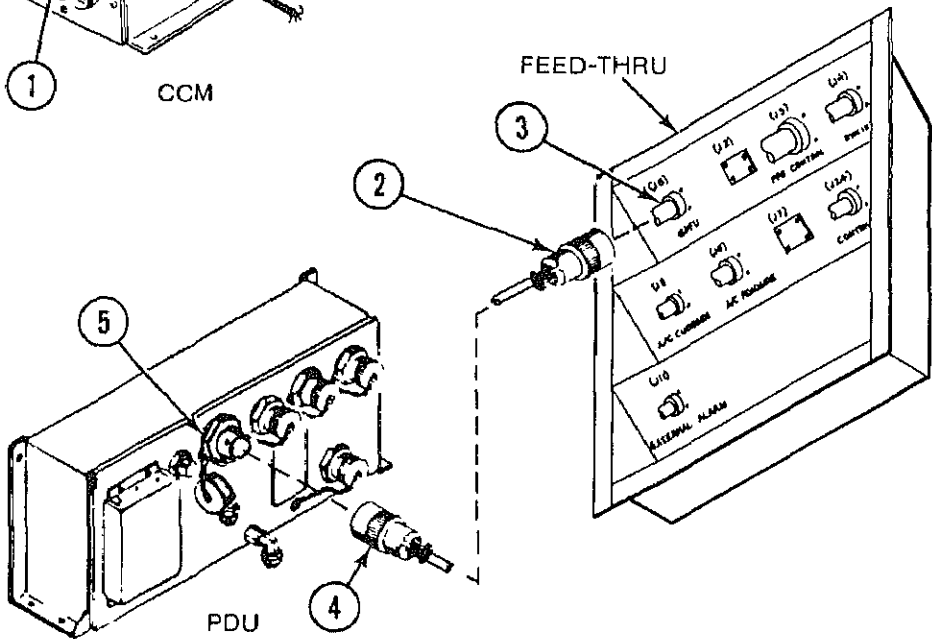
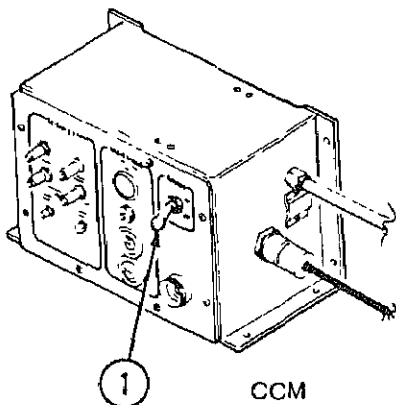
LOCATION	ITEM	ACTION
----------	------	--------

REMOVAL

Power Distribution
Unit and
Feed-Thru
Connector

Cable W90

- Set compartment control module POWER switch (1) to OFF. Turn off power source
- Disconnect electrical cable assembly plug P1 (2) from feed-thru connector J5 (3)
- Disconnect electrical cable assembly plug P3 (4) from power distribution unit connector J3 (5)



LOCATION	ITEM	ACTION
----------	------	--------

TEST

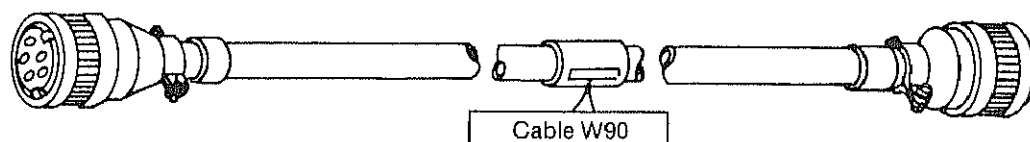
Check continuity of each wire between P1 and P3

REPLACE

Power Distribution
Unit and
Feed-Thru
Connector

Cable W90

Replace cable if it fails continuity check



INSTALLATION

Power Distribution
Unit and
Feed-Thru
Connector

Cable W90

Set compartment control module POWER switch (1) to OFF. Turn off power source.

Connect electrical cable assembly plug P3 (4) to power distribution unit connector J3 (5).

Connect electrical cable assembly plug P1 (2) to feed-thru connector J5 (3).

2-26. C5-19-6712 - MAINTENANCE INSTRUCTIONS.

This task covers:

- a. Removal

b. Test
- c. Replace

d. Installation

INITIAL SETUP

Test Equipment
Multimeter

LOCATION	ITEM	ACTION
----------	------	--------

REMOVAL

WARNING

Before removing power cable, be sure that POWER switch on compartment control is set to OFF position and that the collective protection equipment power source is shut down to avoid injury or loss of life.

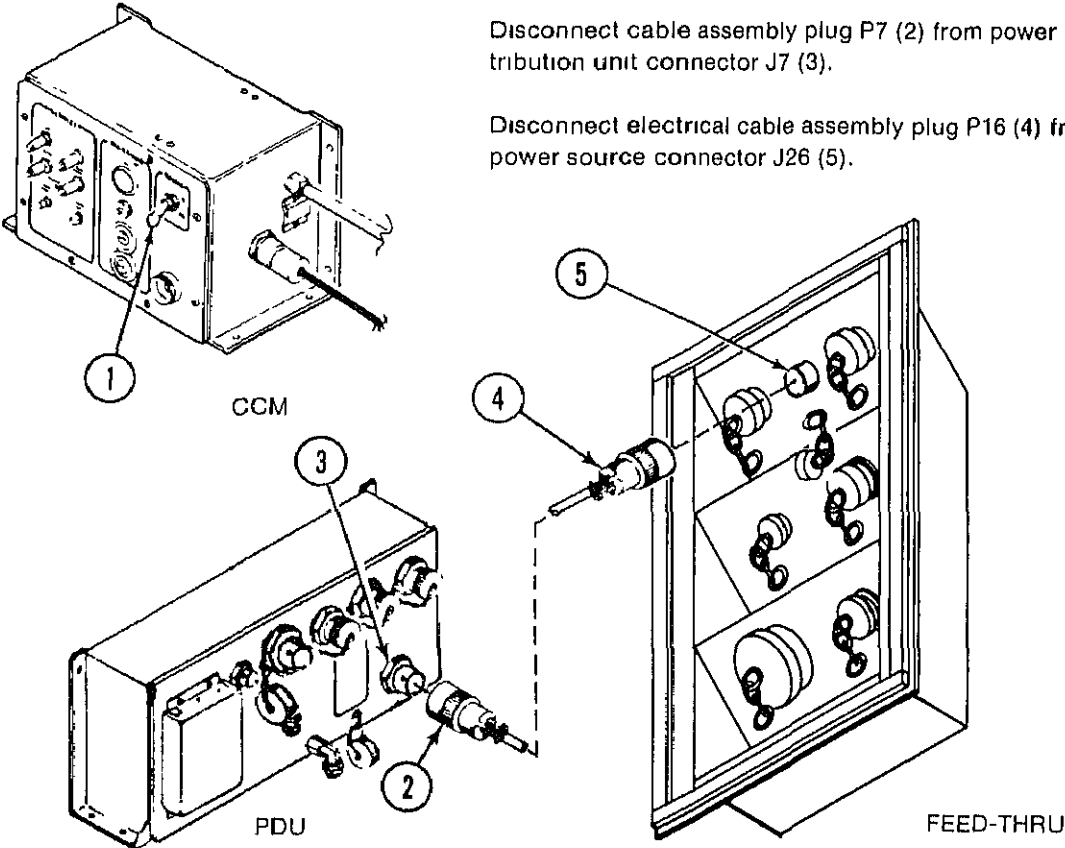
Power Distribution
Unit and
Power Source
Connector

Cable C5-19-6712

Set compartment control module POWER switch (1) to OFF. Turn off power source.

Disconnect cable assembly plug P7 (2) from power distribution unit connector J7 (3).

Disconnect electrical cable assembly plug P16 (4) from power source connector J26 (5).



LOCATION	ITEM	ACTION
----------	------	--------

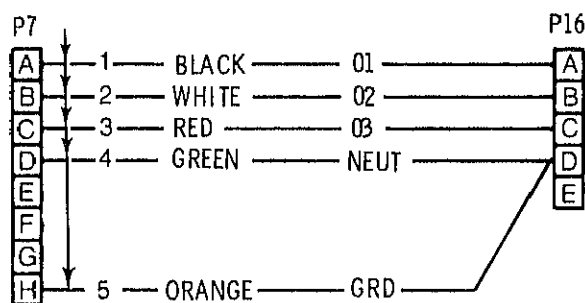
TEST

Power Distribution
Unit and Power
Source Connector

Check continuity of each wire between P7 and P16

NOTE

Use multimeter and cable C5-19-6712 wiring diagram.



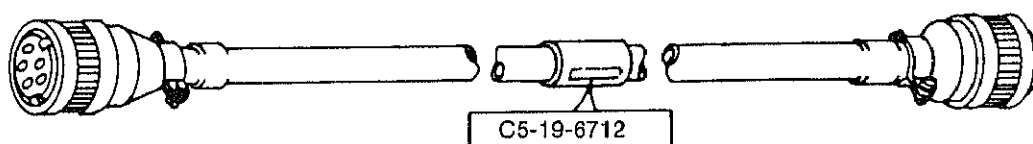
C5-19-6712
CABLE WIRING DIAGRAM

REPLACE

Power Distribution
Unit and Power
Connector

Cable C5-19-6712

Replace cable if it fails continuity check



INSTALLATION

WARNING

Before removing power cable, be sure that POWER switch on compartment control is set to OFF position and that the collective protection equipment power source is shut down to avoid injury or loss of life.

Power Distribution
Unit and
Power Source
Connector

Cable C5-19-6712

Set compartment control module POWER switch (1) to OFF. Turn off power source.

Connect electrical cable assembly plug P16 (4) to power source connector J26 (5) at feed-thru.

Connect electrical cable assembly plug P7 (2) to power distribution unit connector J7 (3).

2-28. FOUR DUCT ADAPTER - MAINTENANCE INSTRUCTIONS.

This task covers

a Removal

c Installation

b Replace/Repair

INITIAL SETUP**Tools**

General Mechanics Tool Kit

SC 5180-90-CL-N26

LOCATION	ITEM	ACTION
----------	------	--------

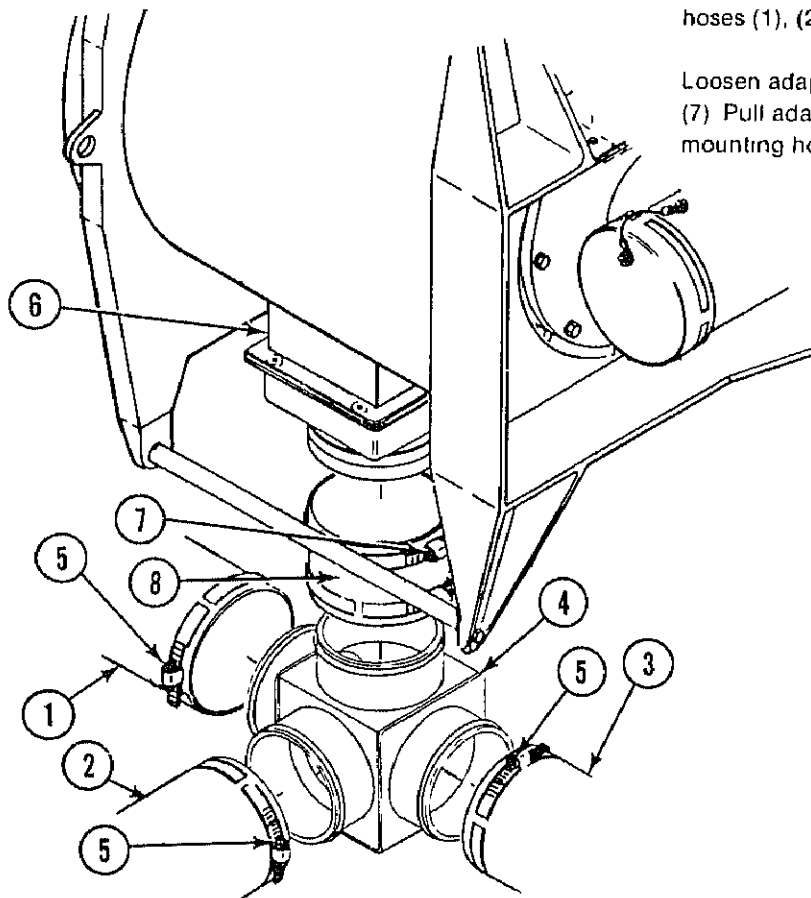
REMOVAL

Airflow Valve

Four duct
adapter

Loosen hose clamp adjusting screws (5). Pull air duct hoses (1), (2) and (3) from adapter (4)

Loosen adapter mounting hose clamp adjusting screws (7). Pull adapter (4) from airflow valve (6). Pull adapter mounting hose (8) from adapter.



LOCATION	ITEM	ACTION
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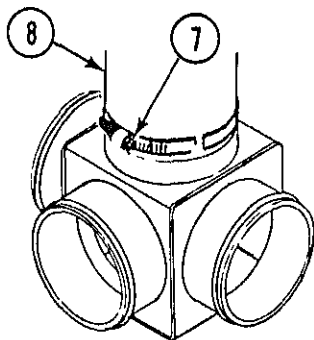
REPLACE/REPAIR

Airflow Valve

Mounting
hose

Replace if defective

Loosen clamp (7) to remove mounting hose (8). Install replacement hose and clamp unit.



INSTALLATION

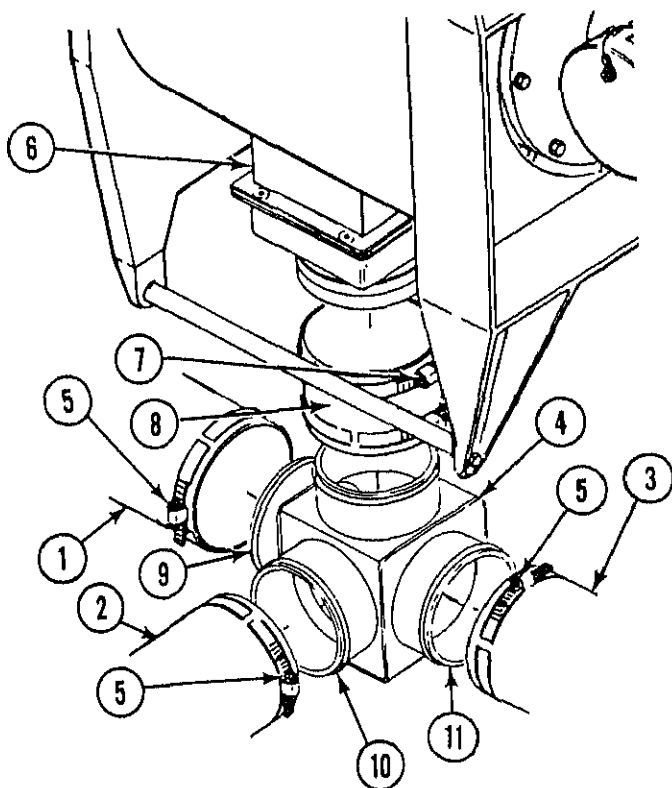
Airflow Valve

Four duct
adapter

Place adapter mounting hose (8) over top port (9) on adapter (4). Tighten adapter clamp adjusting screw (7) securely. Place adapter mounting hose in airflow valve port marked TO SHELTER (6).

Place air duct hoses (1) (2) and (3) over adapter ducts (9) (10) and (11). Place PE air duct hose (1) over duct (9). Place air conditioner air duct hoses (2 and 3) over ducts (10) and (11).

Tighten hose clamp adjusting screws (5) securely.



APPENDIX A REFERENCES

The following publications are related to information contained in this manual.

A-1. TECHNICAL MANUALS.

TM 3-220	Chemical, Biological and Radiological (CBR) Decontamination
*TM 9-1430-600-12-1	Operation and Organizational Maintenance Instructions, Engagement Control Station, Guided Missile, Truck Mounted, AN/MSQ-104 (XO-1)
*TM 9-1430-602-12-1	Operation and Organizational Maintenance Instructions, Information and Coordination Central, Guided Missile, Truck Mounted, AN/MSQ-116 (XO-1)
*TM 9-1430-604-12-1	Operation and Organizational Maintenance Instructions, Communications Relay Group, Guided Missile, Truck Mounted, AN/MRC-137 (XO-1)
TM 10-277	Chemical, Toxicological and Missile Fuel Handlers Protective Clothing
TM 38-750	The Army Maintenance Management System (TAMMS)
TM 43-0002-31	Destruction of Chemical Weapons and Defense Equipment to Prevent Enemy Use
TM 43-0139	Painting Instructions for Field Use
TM 740-90-1	Administrative Storage of Equipment

A-2. COMMON TABLE OF ALLOWANCES.

CTA 50-970	Expendable Items (Except: Medical Class V R Parts and Heraldic Items)
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A-3. SUPPLY BULLETIN.

SB 708-41/42	Federal Supply Code for Manufacturers; Unit and Canada — Name to Code and Code to I
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A-4. SUPPLY CATALOG.

SC 5180-90-CL-N26	Tool Kit, General Mechanics; Automotive
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APPENDIX B MAINTENANCE ALLOCATION CHART

Section I INTRODUCTION

B-1. GENERAL.

- a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.
- b. The maintenance allocation chart (MAC) in Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.
- c. Section III lists the special tools and test equipment required for each maintenance function as referenced from Section II.
- d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.
- d. *Adjust*. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.
- e. *Aline*. To adjust specified variable elements of an item to bring about optimum or desired performance.
- f. *Calibrate*. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
- g. *Install*. The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

B-2. MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows:

- a. *Inspect*. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.
- b. *Test*. To verify serviceability by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.
- c. *Service*. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.
- h. *Replace*. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.
- i. *Repair*. The application of maintenance services¹ or other maintenance actions² to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.
- j. *Overhaul*. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

¹ Services - inspect, test, service, adjust, aline, calibrate, or replace.

² Actions - welding, grinding, riveting, straightening, facing, remachining, or resurfacing.

- k. *Rebuild.* Consists of those services/actions necessary for the restoration of un-serviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc) considered in classifying Army equipments/components.

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II.

- a. *Column 1, Group Number.* Column 1 lists functional group code numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.
- b. *Column 2, Component/Assembly.* Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.
- c. *Column 3, Maintenance Function.* Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph B-2.)
- d. *Column 4, Maintenance Category.* Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific

tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

- C Operator or crew.
- O Organizational maintenance.
- F Direct support maintenance.
- H General support maintenance.
- D Depot maintenance.
- e. *Column 5, Tools and Equipment.* Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function
- f. *Column 6, Remarks.* This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

- a. *Column 1, Reference Code.* The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5
- b. *Column 2, Maintenance Category.* The lowest category of maintenance authorized to use the tool or test equipment.
- c. *Column 3, Nomenclature.* Name or identification of the tool or test equipment.
- d. *Column 4, National Stock Number.* The National stock number of the tool or test equipment.
- e. *Column 5, Tool Number.* The manufacturer's part number.

B-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

- a. *Column 1, Reference Code.* The code recorded in column 6, Section II.
- b. *Column 2, Remarks.* This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

SECTION II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQUIP.	(6) REMARKS
			C	O	F	H	D		
0100	M14 PROTECTIVE ENTRANCE	Inspect Test Replace Repair		0.1 0.2 0.5 0.2				4 1	A
0110	PROTECTIVE ENTRANCE CONTROL MODULE	Test Replace Repair			0.5			4, 5, 6, 8, 9, 10, 11, 12, 13, 14 1 1, 2	
0200	M59 GAS- PARTICULATE FILTER UNIT	Inspect Test Repair		0.5 0.2 1.0				4 1, 3	
0210	HOUSING UNIT	Repair		0.5				1	B
0211	MAIN FAN	Replace Repair		0.5			1.0	1	
0212	AIRFLOW VALVE	Test Replace Repair			0.2 0.3 0.4			4, 5, 12 1 1, 2	
0220	POWER DISTRIBUTION UNIT	Replace Repair		0.2		0.1		1 2	
0221	POWER DISTRIBUTION PANEL	Test Repair			0.5 0.1			4, 5, 6, 7, 9, 10, 11, 12, 13 1, 2	
0230	COMPARTMENT CONTROL MODULE	Test Replace Repair			0.5			4, 5, 6, 8, 9, 10, 11, 12, 13 1 1, 2	
0300	M265 INSTALLATION KIT	Test Inspect Repair		0.2 0.1 0.3				4	

Section III TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O	TOOL KIT, GENERAL MECHANICS	5180-00-177-7003	SC 5180-90-CL-N26
2	F	TOOL KIT, ELECTRONIC EQUIPMENT	5180-00-610-8177	SC 5180-91-CL-R07
3	O	WRENCH, TORQUE	5120-00-247-2536	Model 260-7P
4	O	MULTIMETER	6625-01-092-1197	
5	F	POWER SUPPLY, DIRECT CURRENT	6130-00-408-4962 (or equivalent)	
6	F	GAGE, DIFFERENTIAL, DIAL INDICATING, 0-6 inches (H ² O)	6685-00-087-6331	
7	F	RESISTOR, 680 OHM, ±5%, 2 WATT	5905-00-256-0390	CX-1331A/U
8	F	RESISTOR, 100 OHM ±, 10% WATT	5905-00-752-6460	
9	F	SYRINGE, HYPODERMIC	6515-00-754-0412	
10	F	TEE, HOSE	4730-00-082-5402	
11	F	TUBING, NONMETALLIC	4720-00-059-5819	
12	F	LEAD SET, TEST	6625-00-395-9313	
13	F	LEAD SET, TEST	6625-00-444-4041	
14	F	ADAPTER, PIPE TO HOSE	4730-00-782-5582	

Section IV. REMARKS

REFERENCE CODE	REMARKS
A	Removed and installed by crew
B	Depot to accumulate for future repair/disposition

APPENDIX C REPAIR PARTS AND SPECIAL TOOLS LIST

Section I INTRODUCTION

C-1. SCOPE. This manual lists spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE), and other special support equipment required for performance of organizational maintenance of the collective protection equipment. It authorizes the requisitioning and issue of spares and repair parts as indicated by the source and maintenance codes.

C-2. GENERAL. This Repair Parts and Special Tools List is divided into the following sections:

- a. *Section II. Repair Parts List.* A list of spares and repair parts authorized for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in numeric sequence, with the parts in each group listed in figure and item number sequence. Bulk materials are listed in NSN sequence.
- b. *Section III. Special Tools List.* Not applicable.
- c. *Section IV. National Stock Number and Part Number Index.* A list, in National item identification number (NIIN) sequence, of all National stock numbers (NSN) appearing in the listings, followed by a list in alphameric sequence of all parts numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

C-3. EXPLANATION OF COLUMNS.

- a. *Illustration.* This column is divided as follows:
 - (1) *Figure Number.* Indicates the figure number of the illustration on which the item is shown.

- (2) *Item Number.* The number used to identify item called out in the illustration.

- b. *Source, Maintenance, and Recoverability (SMR) Codes.*

- (1) *Source Code.* Source codes indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

Code	Definition
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purpose because essentiality dictates that a minimum quantity be available in the supply system.
PC	Item procured and stocked and which otherwise would be coded PA except that it is deteriorative in nature.
PD	Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issues or outfittings. Not subject to automatic replenishment.
PE	Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.
PF	Support equipment which will not be stocked but which will be centrally procured on demand.
PG	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which, because of probable discontinuance or shutdown of production facilities, would prove uneconomical to reproduce at a later time.

<i>Code</i>	<i>Definition</i>
KD	An item of a depot overhaul/repair kit and not purchased separately. Depot kit defined as a kit that provides items required at the time of overhaul or repair.
KF	An item of a maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizational or intermediate levels of maintenance.
KB	Item included in both a depot overhaul/repair kit and a maintenance kit.
MO	Item to be manufactured or fabricated at organizational level.
MF	Item to be manufactured or fabricated at the direct support maintenance level.
MH	Item to be manufactured or fabricated at the general support maintenance level.
MD	Item to be manufactured or fabricated at the depot maintenance level.
AO	Item to be assembled at organizational level.
AF	Item to be assembled at direct support maintenance level.
AH	Item to be assembled at general support maintenance level.
AD	Item to be assembled at depot maintenance level.
XA	Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.
XB	Item is not procured or stocked. If not available through salvage, requisition.
XC	Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.
XD	A support item that is not stocked. When required, item will be procured through normal supply channels.

NOTE

Cannibalization or salvage may be used as a source of supply for any items coded above except those coded XA.

(2) *Maintenance Code* Maintenance codes are assigned to indicate the levels of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format as follows:

- (a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate one of the following levels of maintenance:

<i>Code</i>	<i>Application/Explanation</i>
C	Crew or operator maintenance performed within organizational maintenance.
O	Support item is removed, replaced, used at the organizational level.
F	Support item is removed, replaced, used at the direct support level.
H	Support item is removed, replaced, used at the general support level.
D	Support items that are removed, replaced, used at depot, mobile depot, or specialized repair activity only.

- (b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This position will contain one of the following maintenance codes.

<i>Code</i>	<i>Application/Explanation</i>
O	The lowest maintenance level capable of complete repair of the support item is the organizational level.
F	The lowest maintenance level capable of complete repair of the support item is the direct support level.

<i>Code</i>	<i>Application/Explanation</i>
H	The lowest maintenance level capable of complete repair of the support item is the general support level.
D	The lowest maintenance level capable of complete repair of the support item is the depot level.
L	Repair restricted to specialized repair activity.
Z	Nonreparable No repair is authorized.
B	No repair is authorized. The item may be reconditioned by adjusting, lubricating, etc., at the user level. No parts or special tools are procured for the maintenance of this item.
	(3) <i>Recoverability Code.</i> Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format as follows:

<i>Recoverability Codes</i>	<i>Definition</i>
Z	Nonreparable item. When unserviceable, condemn and dispose at the level indicated in position 3.
O	Reparable item. When uneconomically repairable, condemn and dispose at organizational level.
F	Reparable item. When uneconomically repairable, condemn and dispose at the direct support level.
H	Reparable item. When uneconomically repairable, condemn and dispose at the general support level.
D	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal not authorized below depot level.

<i>Recoverability Codes</i>	<i>Definition</i>
L	Reparable item. Repair, condemnation, and disposal not authorized below depot/specialized repair activity level.

<i>Recoverability Codes</i>	<i>Definition</i>
A	Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.
	c. <i>National Stock Number.</i> Indicates the National stock number assigned to the item and which will be used for requisitioning.
	d. <i>Federal Supply Code for Manufacturer (FSCM).</i> The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, or Government agency, etc.
	e. <i>Part Number.</i> Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When a stock numbered item is requisitioned, the item received may have a different part number than the part being replaced.

- f. *Description.* Indicates the Federal item name and, if required, a minimum description to identify the item.
- g. *Unit of Measure (U/M).* Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr, etc). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

- h. *Quantity Incorporated in Unit.* Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable, (e.g., shims, spacers, etc).

C-4. SPECIAL INFORMATION.

- a. Usable on codes are shown in description column. Uncoded items are applicable to all models.
- b. Detailed manufacturing instructions for items source coded to be manufactured or fabricated are found in Appendix E of this manual. Bulk materials required to manufacture items are listed in the bulk material group of this appendix.
- c. Action change codes indicated in the left hand margin of the listing page denote the following:

N

Indicates an added item.

C

Indicates a change in data.

R

Indicates a change in NSN only.

C-5. HOW TO LOCATE REPAIR PARTS.

- a. When National Stock Number or Part Number is Unknown:
 - (1) *First.* Using the table of contents determine the functional group within which the item belongs. This is necessary since illustrations are prepared for functional groups, and listings are divided into the same groups.
 - (2) *Second.* Find the illustration covering the functional group to which the item belongs.
 - (3) *Third.* Identify the item on the illustration and note the illustration figure and item number of the item.
 - (4) *Fourth.* Using the Repair Parts Listing, find the figure and item number noted on the illustration.

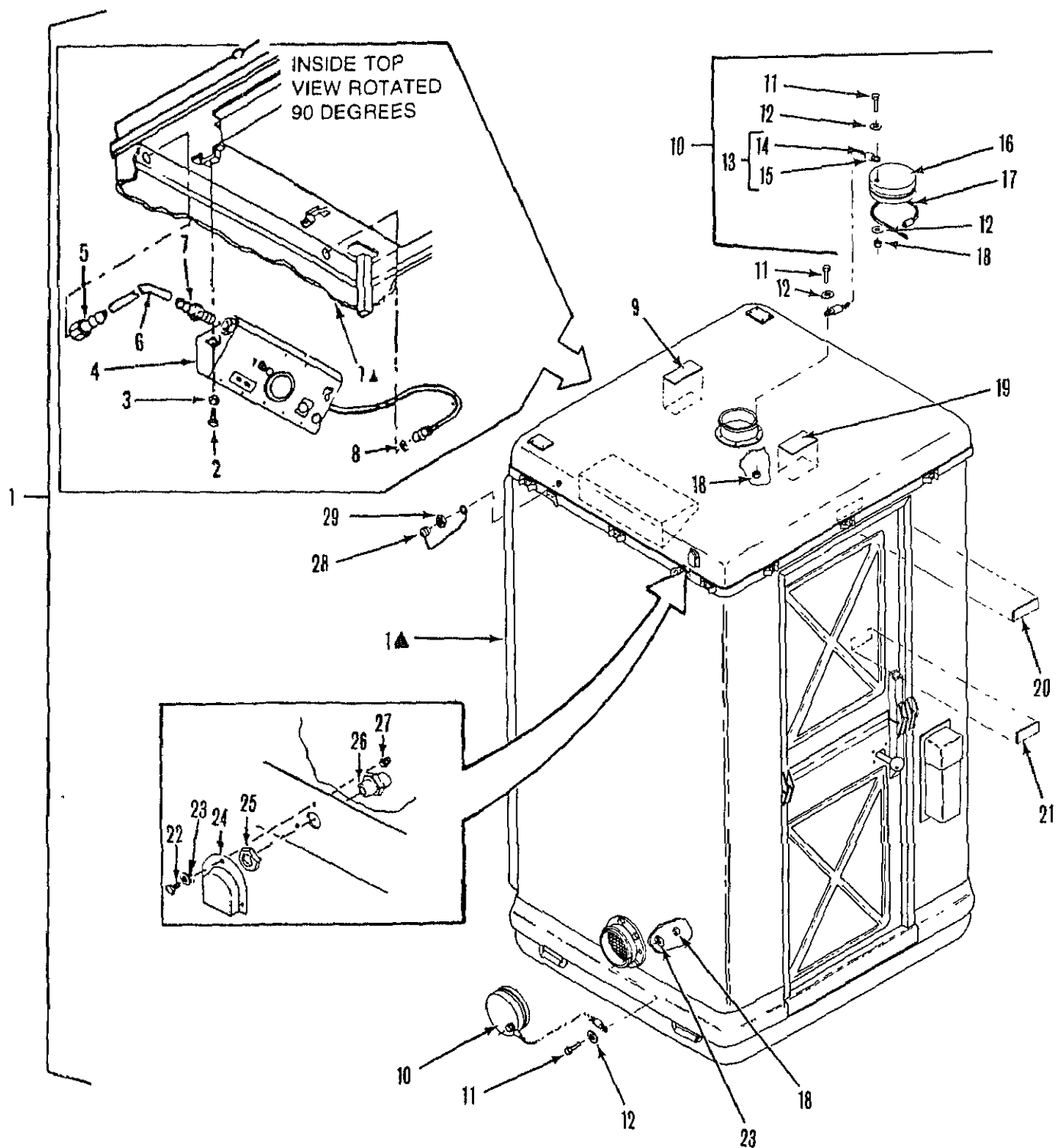
- b. When National Stock Number or Part Number is Known:

- (1) *First.* Using the Index of National Stock Numbers and Part Numbers, find the pertinent National stock number or part number. This index is in NIIN sequence followed by a list of part numbers in alphameric sequence, cross-referenced to the illustration figure number and item number.
- (2) *Second.* After finding the figure and item number, locate the figure and item number in the repair parts list.

ABBREVIATIONS.

Abbreviation	Explanation
CFM	cubic feet per minute
dia	diameter
hd	head
hex	hexagon
in.	inch
id	inside diameter
lg	long
MFG	manufactured
mtg	mounting
NPS	National Pipe Standard
nom	nominal
no.	number
oa.	overall
od	outside diameter
porm	plus or minus
PSI	pounds per square inch
thk	thick
thd	thread
UNC	United National Coarse
UNF	United National Fine
w/	with

Section II REPAIR PARTS LIST



▲ FURNISHED WITH BASIC ITEM

Figure C-1. M14 protective entrance

ARA 81-0034

(1) ILLUSTRATION		(2) SHR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) QTY INC IN UNIT
GROUP 0100 M14 PROTECTIVE ENTRANCE E5-19-6201-50							
C-1	1	PAD00	4240-01-103-5521	81361	E5-19-6201-50	ENTRANCE, PROTECTIVE, PRESSURIZED M14	EA 1
C-1	2	PADZZ	5305-00-179-8946	96906	MS51849-66	SCREW, MACHINE, HEX HD, NO. 10-32 UNF-2A, 3/4 IN. LG.	EA 7
C-1	3	PADZZ	5310-00-045-3296	96906	MS35338-43	WASHER, LOCK SPRING, NO. 10 NOM SIZE.	EA 1
C-1	4	PADFF	4240-01-115-0996	81361	E5-19-6641	CONTROL MODULE, PROTECTIVE ENTRANCE	EA 1
C-1	5	PADZZ	4730-01-050-7540	30327	KF03-04RV	ADAPTER, STRAIGHT, PIPE TO HOSE	EA 1
C-1	6	MODZZ		81361	E5-19-6641-74	HOSE, NONMETALLIC, LOW PRESSURE MFD FROM 4720-00-065-8602	EA 1
C-1	7	PADZZ	4730-01-017-5119	30327	KF03-02PS	ADAPTER, STRAIGHT, PIPE TO HOSE	EA 1
C-1	8	PADZZ	5330-00-250-0236	96906	MS29513-024	PACKING, PREFORMED	EA 1
C-1	9	PADZZ	9905-01-068-2368	81361	5-19-6657	PLATE, INSTRUCTION NO STEP	EA 1
C-1	10	PAD00	5340-01-048-6327	81361	C5-19-6145	CAP, PROTECTIVE, DUST AND MOISTURE SEAL	EA 2
C-1	11	PADZZ	5305-00-115-9934	96906	MS51849-55	SCREW, MACHINE, HEX HD, STL, 8-32 UNC-2A, 5/8 IN. LG.	EA 3
C-1	12	PADZZ	5310-00-765-3197	96906	MS27183-41	WASHER, FLAT, .188 IN. ID, .438 IN. OD, .049 IN. THK	EA 5
C-1	13	AD000		99862	CL-2-FANDCL-2-C-8.0	CABLE, SUPPORT	EA 2
C-1	14	PADZZ	4030-00-878-8693	99862	CL2F	FERRULE, WIRE ROPE	EA 4
C-1	15	MODZZ		99862	CL-2-C-8.0	CABLE, NYLON, 8 IN. LG, MFD FROM 4010-00-069-518C	EA 2
C-1	16	XADZZ		81361	C5-19-6309	CAP, RUBBER	EA 2
C-1	17	PADZZ	4730-00-908-6294	96906	MS35842-16	CLAMP HOSE 4-1/8 TO 7 IN DIA RANGE	EA 2
C-1	18	PADZZ	5310-00-811-3494	96906	MS21044N08	NUT, SELF-LOCKING, HEXAGON NO. 8-32 UNJC-1B	EA 1
C-1	19	PADZZ	9905-01-049-1385	81361	C5-19-6175	PLATE, INSTRUCTION PARTIAL LEGEND OPENING PROCEDURE	EA 1
C-1	20	PADZZ	9905-01-128-5825	81361	C5-19-6316-13	PLATE, IDENTIFICATION ENTRANCE, PROTECTIVE, PRESSURIZED, COLLAPSIBLE, M14	EA 1
C-1	21	PADZZ	9905-01-048-2790	81361	05-19-6238	PLATE, INSTRUCTION CAUTION DO NOT ENTER WHEN PROTECTIVE ENTRANCE IS OCCUPIED	EA 1
C-1	22	PADZZ	5305-00-115-9406	96906	MS51849-53	SCREW, MACHINE, HEX HD, STL, 8-32 UNC-2A X .38 IN LG.	EA 3
C-1	23	PADZZ	5310-00-045-3299	96906	MS35338-42	WASHER, LOCK SPRING, NO 8	EA 3
C-1	24	PADZZ	4240-01-049-0804	81361	C5-19-6236	COVER, PROTECTIVE, TUBING CONNECTION	EA 1
C-1	25	PADZZ	5310-00-897-6981	96906	MS35691-32	NUT, PLAIN, HEXAGON JAM 7/16-20UNF-2B	EA 1
C-1	26	PADZZ	4730-01-067-9232	81361	C5-19-6654	ADAPTER, PIPE TO TUBE 1/4NPS, 7/16-20UNF-2A	EA 1
C-1	27	PADZZ	5310-00-978-9821	96906	MS24679-2	NUT, PLAIN, CAP NO. 8-32 UNC-2B	EA 3
C-1	28	PADZZ	5935-00-490-5580	96906	MS7181-14N	COVER, ELECTRICAL CONNECTOR	EA 1
C-1	29	PADZZ	5310-00-435-8987	96906	MS3186-43	NUT, PLAIN, HEXAGON 1-20UNEF-2B	EA 1

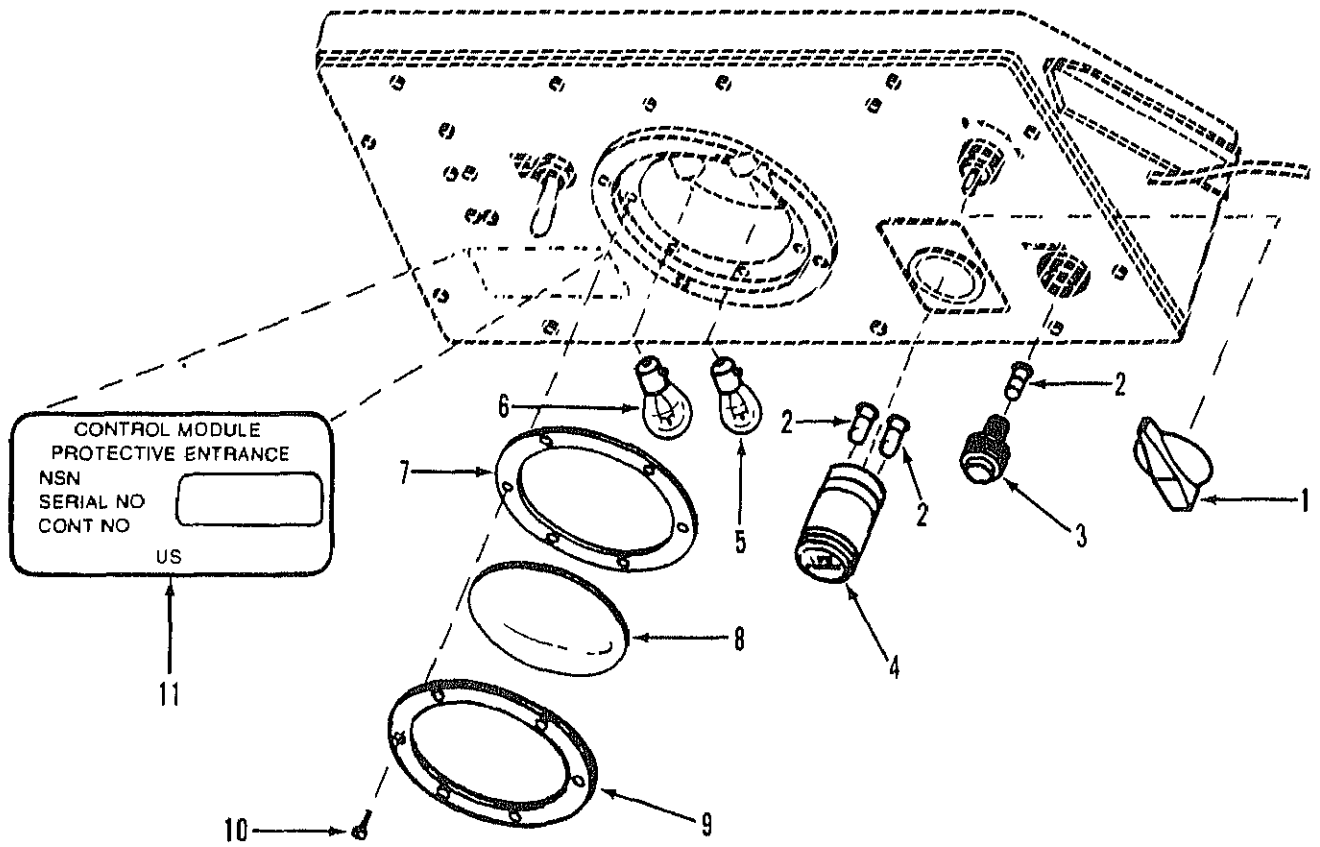


Figure C-2. Protective entrance control module

ARA 81-0035

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U M	QTY INC IN UNIT
						GROUP 0110 PROTECTIVE ENTRANCE CONTROL MODULE C5 19 6641		
C-2	1	PA0ZZ	5355-00-R21 5225	79919	K3581	MOD	EA	1
C-2	2	PA0ZZ	6240-00-763-7744	96906	MS25237-387	LAMP INCANDESCENT TRANSPARENT WHITE	FA	2
C-2	3	XA0ZZ		96906	MS25041-B LENS ONLY	LENS	EA	1
C-2	4	XA0ZZ		04426	44-601	LIGHT. MODULE	EA	1
C-2	5	PA0ZZ	6240-00-155-7784	96906	MS35478-307	LAMP, INCANDESCENT TRANSPARENT, WHITE LIGHT EMITTED	EA	1
C-2	6	PA0ZZ	6240-00-155-7932	96906	MS25235-R311	LAMP, INCANDESCENT TRANSLUCENT, RED LIGHT EMITTED	EA	1
C-2	7	PA0ZZ	5330-00-143-8571	96906	MS25358-6	GASKET DOME LIGHT	FA	1
C-2	8	PA0ZZ	6220-00-283-9732	96906	MS25358-4	LENS, LIGHT	FA	1
C-2	9	XA0ZZ		96906	MS25358-5	RETAINER LIGHT	EA	1
C-2	10	PA0ZZ	5305-00-889-2999	96906	MS35206-217	SCREW, MACHINE PAN HD, NO. 4-40 UNC-2A 1/2 IN. LG.	FA	6
C-2	11	PA0ZZ	9705-01-128-9824	81361	C5-19-6316-B	PLATE, IDENTIFICATION CONTROL MODULE, PROTECTIVE ENTRANCE	EA	1

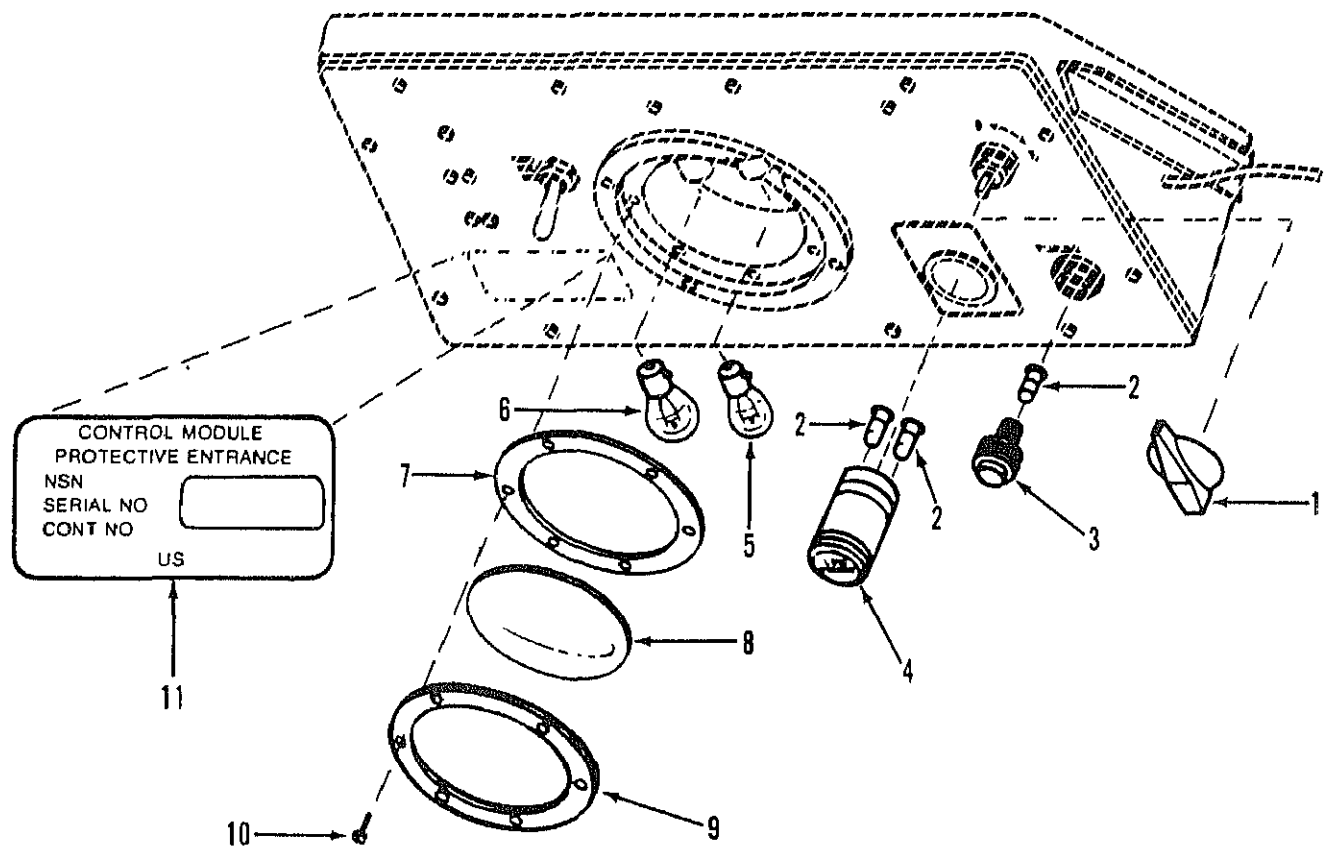


Figure C-2. Protective entrance control module

ARA 81-003

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION USABLE ON CODE	U M	QTY INC IN UNIT
						GROUP 0110 PROTECTIVE ENTRANCE CONTROL MODULE E5 19 6641		
C-2	1	PA0ZZ	5355-00-821 5225	79919	K3581	KNOB	EA	1
C-2	2	PA0ZZ	6240-00-763-7744	96906	MS25237-387	LAMP INCANDESCENT TRANSPARENT WHITE	EA	3
C-2	3	XA0ZZ		96906	MS25041-8 LENS ONLY	LENS	EA	1
C-2	4	XA0ZZ		04424	44-601	LIGHT MODULE	EA	1
C-2	5	PA0ZZ	6240-00-155-7784	96906	MS35478-307	LAMP INCANDESCENT TRANSPARENT WHITE LIGHT EMITTED	EA	1
C-2	6	PA0ZZ	6240-00-155-7932	96906	MS25235-R311	LAMP INCANDESCENT TRANSLUCENT RED LIGHT OMI IFD	EA	1
C-2	7	PA0ZZ	5330-00-143-8571	96906	MS25358-6	CASKET DOME LIGHT	EA	1
C-2	8	PA0ZZ	6220-00-283-9732	96906	MS25358-4	LENS LIGHT	EA	1
C-2	9	XA0ZZ		96906	MS25358-5	RETAINER LIGHT	EA	1
C-2	10	PA0ZZ	5305-00-889-2999	96906	MS35206-217	SCREW MACHINE PAN HD, NO. 4-40 UNC-2A 1/2 IN. LG.	EA	6
C-2	11	PA0ZZ	9705-01-128-5826	81361	C5-19-6316-8	PLATE IDENTIFICATION CONTROL MODULE, PROTECTIVE ENTRANCE ..	EA	1

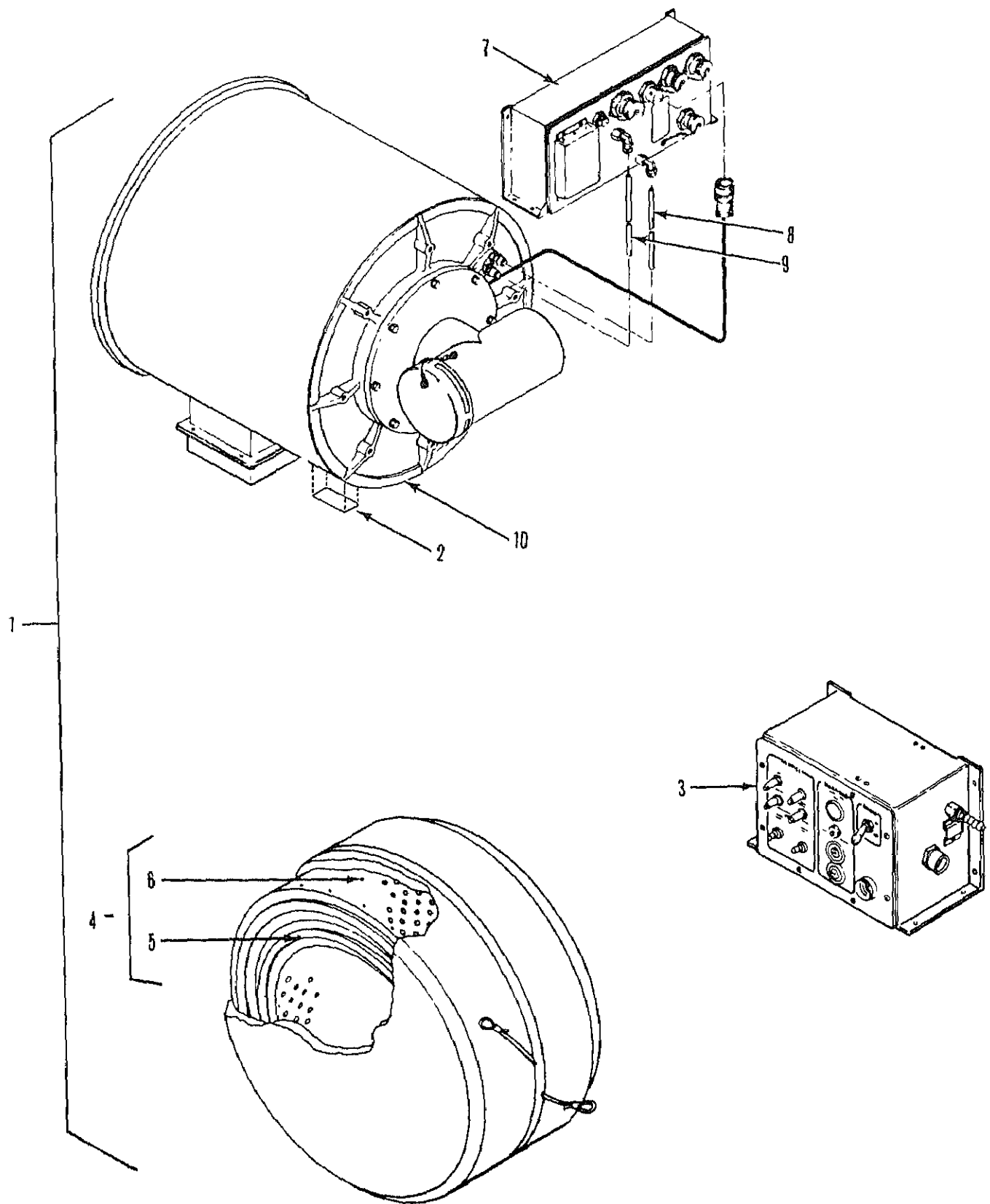


Figure C-3. M59 gas-particulate filter unit

ARA 81-0

(1) ILLUSTRATION		(2) S&R CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODE	(7) U.S.	(8) QTY INC IN UNIT
						GROUP 0200 M59 GAS PARTICULATE FILTER UNIT E5-19-6699		
C-3	1	PAQDD	4240-00-237-0223	81361	E5-19-6699	FILTER UNIT, GAS-PARTICULATE 2 FILTER, M59.....	EA	1
C-3	2	PAQZZ	9905-01-128-5824	81361	C5-19-6316-14	PLATE IDENTIFICATION FILTER UNIT, GAS-PARTICULATE, 2 FILTER M59.....	EA	1
C-3	3	PADFF	4240-01-057-3378	81361	E5-19-6376	CONTROL MODULE UNIT.....	EA	1
C-3	4	PAQZA	4240-01-067-5605	81361	S-19-6718	FILTER SET, GAS PARTICULATE.....	EA	2
C-3	5	PAQZA	4240-01-066-3266	81361	D5-19-6262	FILTER, PARTICULATE.....	EA	2
C-3	6	XAQZA		81361	D5-19-6368	FILTER, GAS.....	EA	2
C-3	7	PADFF	4240-01-068-8643	81361	E5-19-6387	POWER DISTRIBUTION UNIT, GAS PARTICULATE FILTER SYSTEM...	EA	1
C-3	8	MQDZ2		81361	E5-19-6699-7	TUBING NONMETALIC 1/4 IN. OD, GREEN RFD FROM 4720010510716	EA	1
C-3	9	MQDZ2		81361	E5-19-6699-6	TUBING NONMETALIC 1/4 IN. OD, RED, RFD FROM 4720009960381	EA	1
C-3	10	XBQFF	4240-01-114-3213	81361	E5-19-6308-20	HOUSING UNIT, FAN-VALVE COLLECTOR, 2 FILTER.....	EA	1

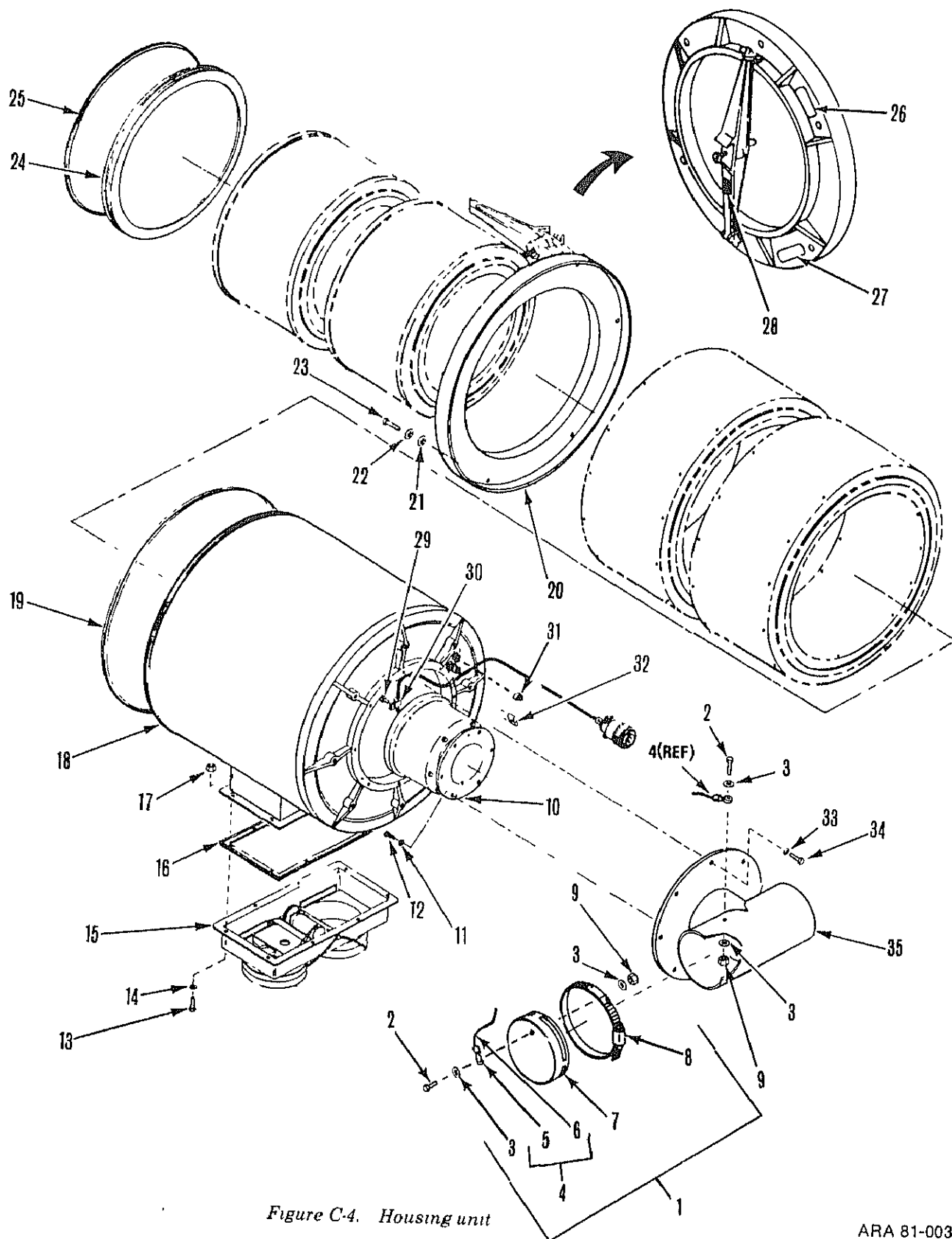


Figure C-4. Housing unit

ARA 81-0037

(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSC#	(5) PART NUMBER	(6) DESCRIPTION	(7) UOM	(8) QTY IN KIT
(a) FIG NO	(b) ITEM NO					USABLE ON CODE		
						GROUP 0210 HOUSING UNIT		
						D5 19-6308-20		
C-4	1	PA000	9340-01-048-6327	81361	CS-19-6145	CAP, PROTECTIVE, DUST AND MOISTURE SEAL	EA	1
C-4	2	PA02Z	5305-00-115-9934	96906	MS51849-55	SCREW, MACHINE, HEX HD, STL, 8-32 UNF-2A X 5/8 IN. LG.	EA	2
C-4	3	PA02Z	5310-00-765-3197	96906	MS27183-41	WASHER, FLAT, .180 IN. ID, .438 IN. OD, .049 IN. THK.	EA	4
C-4	4	A0000		99862	CL-2-FANDCL-2-C-8.0	CABLE SUPPORT.....	EA	1
C-4	5	PA02Z	4030-00-878-8693	99862	CL2F	FERRULE, WIRE ROPE	EA	2
C-4	6	MO02Z		99862	CL-2-C-8.0	CABLE, NYLON, 8 IN. LG. MFD FROM 4010600695180	EA	1
C-4	7	XA02Z		81361	CS-19-6309	CAP, RUBBER.....	EA	1
C-4	8	PA02Z	4730-00-908-6294	96906	MS35842-16	CLAMP, HOSE, 4-1/8 TO 7 IN. DIA RANGE	EA	1
C-4	9	PA02Z	5310-00-811-3494	96906	MS21044N08	NUT, SELF-LOCKING, HEXAGON, 8-32 UNF-30.....	EA	2
C-4	10	PA000	4140-01-107-2246	81361	E5-19-6317-10	FAIR VALVE AXIAL, 400 CFM.....	EA	1
C-4	11	PA02Z	5310-00-809-4058	96906	MS27183-10	WASHER, FLAT, .281 IN. ID, .625 IN. OD, .065 IN. THK.	EA	6
C-4	12	PA02Z	5305-00-069-0511	96906	MS90727-6	SCREW, CAP, HEXAGON HEAD, 1/4-28 UNF-2A, 3/4 IN. LG.	EA	6
C-4	13	PA02Z	5305-00-824-7363	80205	NAS1096-3-12	SCREW, MACHINE, HEX HD, .190-32 UNF-1A X .750 LG.	EA	8
C-4	14	PA02Z	5310-00-014-5850	96906	MS27183-42	WASHER, FLAT, .219 IN. ID, .500 IN. OD, .049 IN. THK.	EA	8
C-4	15	PA0FF	4240-01-095-1493	81361	E5-19-6136	VALVE, AIRFLOW.....	EA	1
C-4	16	PA02Z	5330-01-088-4442	81361	5-19-6348	GASKET, VALVE.....	EA	1
C-4	17	PA02Z	5310-00-877-5797	96906	MS21044N3	NUT, SELF-LOCKING, HEXAGON, NO. 10-32 UNF-30	EA	8
C-4	18	XB02Z	4240-01-105-5393	81361	E5-19-6121	HOUSING, GAS-PARTICULATE, 2 FILTER	EA	1
C-4	19	PA02Z	5330-01-069-9824	81361	CS-19-5687-2	SEAL, RUBBER, SPECIAL SHAPED SECTION.	EA	1
C-4	20	XB02Z		81361	E5-19-6128	COVER, ACCESS, OUTER.....	EA	1
C-4	21	PA02Z	5310-00-080-6004	96906	MS27183-14	WASHER, FLAT, .406 IN. ID, .812 IN. OD, .065 IN. THK.	EA	6
C-4	22	PA02Z	5310-00-187-2400	89044	AN960PD616	WASHER, FLAT, .390 IN. ID, .625 IN. OD, .063 IN. THK.	EA	6
C-4	23	PA02Z	5305-00-269-3240	96906	MS90727-64	SCREW, CAP, HEXAGON HEAD, 3/8-24 UNF-2A, 1-1/2 IN. LG.	EA	6
C-4	24	XB02Z		81361	D5-19-6260	COVER, INNER.....	EA	1
C-4	25	PA02Z	5330-01-068-0515	81361	CS-19-5687-1	SEAL, RUBBER, SPECIAL SHAPED SECTION	EA	1
C-4	26	PA02Z	9905-01-067-8634	81361	D5-19-6114	PLATE, INSTRUCTION, WARNING TORQUE OUTER COVER BOLTS 180 TO 200 INCH POUNDS.....	EA	1
C-4	27	PA02Z	9905-01-066-3084	81361	CS-19-6135	PLATE, INSTRUCTION, WARNING DO NOT REMOVE COVERS TO SERVICE COMPONENTS AFTER TOXIC EXPOSURE WITHOUT OBSERVING PROPER HANDLING PROCEDURES.....	EA	1
C-4	28	PA02Z	9905-01-050-7557	81361	D5-19-6133	PLATE, INSTRUCTION, WARNING TIGHTEN UNTIL SLEEVE IS FLUSH WITH TOP SURFACE.....	EA	1
C-4	29	PA02Z	5305-00-180-4966	96906	MS51849-64	SCREW, MACHINE, HEX HD, NO. 10-32 UNF-2A, 1/2 IN. LG.	EA	1
C-4	30	PA02Z	5340-01-032-6929	96906	MS9352-06	CLAMP, LOOP, CUSHIONED 7/16 IN. NOM. I.D. OD.	EA	1
C-4	31	PA02Z	4730-00-817-1891	30327	261P1-4	NUT, INDE COUPLING, 1/4 IN. I.D., 3/16-20 THD SIZE W/4 FEW.	EA	2
C-4	32	PA02Z	5365-01-057-7379	81361	D5-19-6347	DUSHING, RUBBER.....	EA	1
C-4	33	PA02Z	5310-00-081-4219	96906	MS27183-12	WASHER, FLAT, .344 IN. ID, .698 IN. OD, .065 IN. THK.	EA	8
C-4	34	PA02Z	5305-00-051-4075	96906	MS90727-33	SCREW, CAP, HEXAGON HEAD, 5/16 UNF-2A, 7/8 IN. LG.	EA	8
C-4	35	PA02Z	4730-01-108-2625	81361	D5-19-6401-20	TEE, FLANGE TO HOSE.....	EA	1

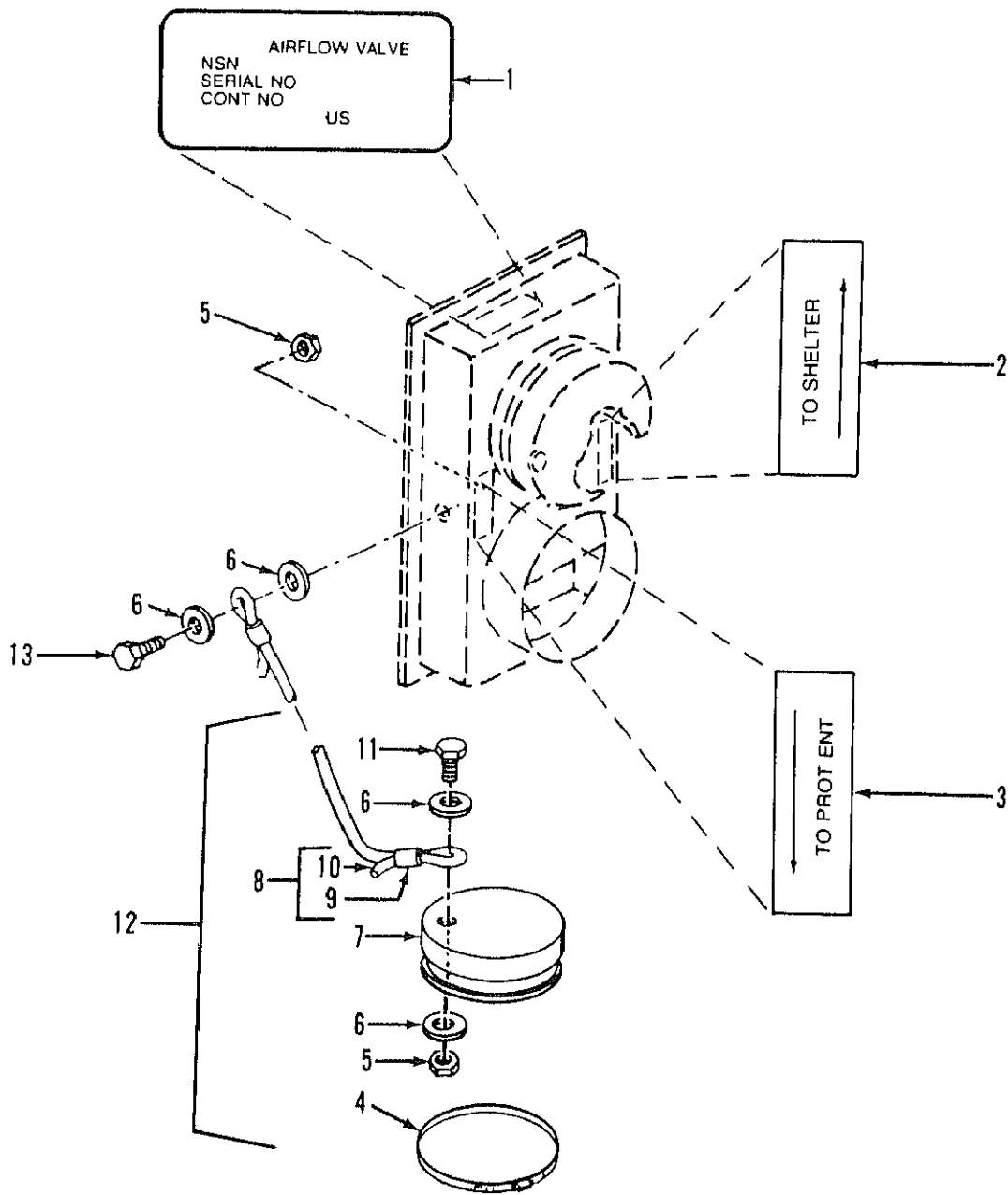


Figure C-5. Airflow valve

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO	(b) ITEM NO	SHR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	QTY INC IN UNIT	
						GROUP 0212 AIRFLOW VALVE E5-19-6136		
-5	1	PA0ZZ	9905-01-065-9382	81361	C5-19-6149	PLATE, IDENTIFICATION AIRFLOW VALVE.	EA	1
-5	2	PA0ZZ	9905-01-051-0186	81361	B5-19-6147	PLATE, INSTRUCTION TO SHELTER.	EA	1
-5	3	PA0ZZ	9905-01-050-7556	81361	B5-19-6148	PLATE, INSTRUCTION TO PROT ENT.	EA	1
-5	4	PA0ZZ	4730-00-908-6294	96906	MS35842-16	CLAMP, HOSE 4-1/8 TO 7 IN. DIA RANGE.	EA	2
-5	5	PA0ZZ	5310-00-811-3494	96906	MS21044N08	NUT, SELF-LOCKING, HEXAGON HD, 8-32 UNC-3B.	EA	3
-5	6	PA0ZZ	5310-00-765-3197	96906	MS27183-41	WASHER, FLAT .188 IN. ID. .438 IN. OD. .049 IN. THK.	EA	6
-5	7	XA0ZZ		81361	C5-19-6309	CAP, RUBBER.	EA	2
5	8	A0000			CL-2-FANDCL-2-C- 8.0	CABLE, SUPPORT.	EA	2
5	9	PA0ZZ	4030-00-878-8693	99862	CL2F	FERRULE, WIRE ROPE.	EA	4
5	10	H0QZ7		99062	CL-2-C-8.0	CABLE, NYLON 8 IN. LG. MFD FROM 4010 00-069-5180 ...	EA	2
5	11	PA0ZZ	5305-00-115-9934	96906	MS51849-55	SCREW, MACHINE HEX HD NO. 8-32 UNC-2A 5/8 IN. LG.	EA	2
5	12	PA000	5340-01-048-6327	81361	C5-19-6145	CAP, PROTECTIVE, DUST AND MOISTURE SEAL.	EA	2
5	13	PA0ZZ	5305-00-157-5621	96906	MS51849-56	SCREW, MACHINE HEX HD, NO. 8-32 UNC-2A 3/4 IN. LG.	EA	1

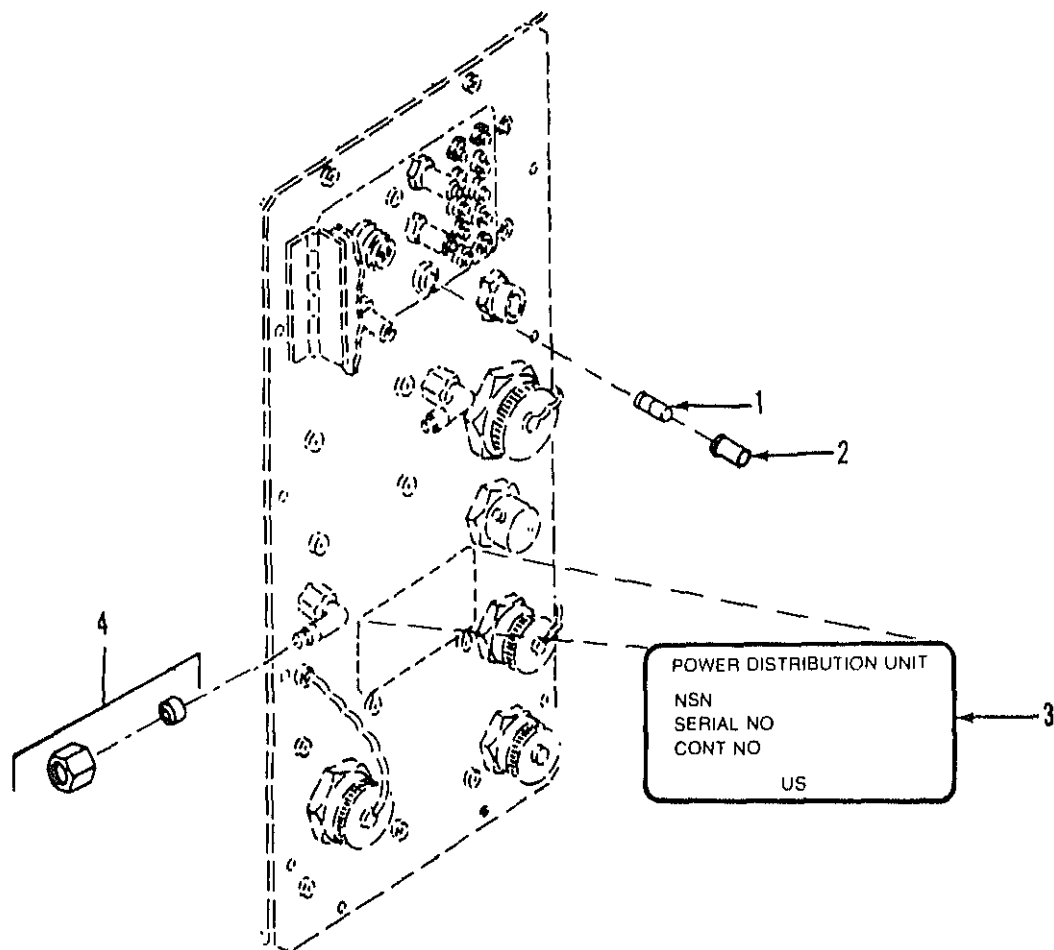


Figure C-6. Power distribution panel

ARA

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION USABLE ON CODE	U M	QTY INC IN UNIT
						GROUP 0221 POWER DISTRIBUTION PANEL E5-19-6391		
C-6	1	PADZZ	6240-00-892-1420	81349	M1509B/11-001	LAMP, GLOW.....	EA	1
C-6	2	YADZZ		07137	PTL-A1(3-C7A) LENS ONLY	LENS	EA	1
C-6	3	PADZZ	9903-01-065-3065	81361	C5-19-6316-6	PLATE IDENTIFICATION POWER DISTRIBUTION UNIT.....	EA	1
C-6	4	PADZZ	4730-00-817-1891	30327	261P1-4	NUT, TUBE COUPLING 1/4 IN. TUBE OD. 3/8-24 THD SIZE, W/SLEEVE	EA	2

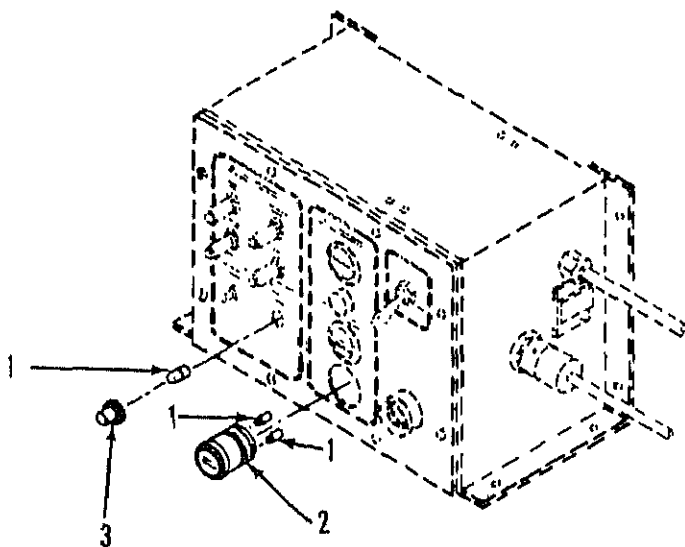


Figure C-7. Compartment control module

ARA 81-004

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SNR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION USABLE ON CODE	U M	QTY INC IN UNIT
						GROUP 0230 COMPARTMENT CONTROL MODULE E5-19-6376		
C-7	1	PA0ZZ	6240-00-763-7744	96906	MS25237-387	LAMP, INCANDESCENT TRANSPARENT, WHITE LIGHT EMITTED.....	EA	8
C-7	2	XA0ZZ		04426	44-601	LIGHT MODULE.....	EA	
C-7	3	XA0ZZ		96906	MS25041-8 LENS ONLY	LENS.....	EA	2

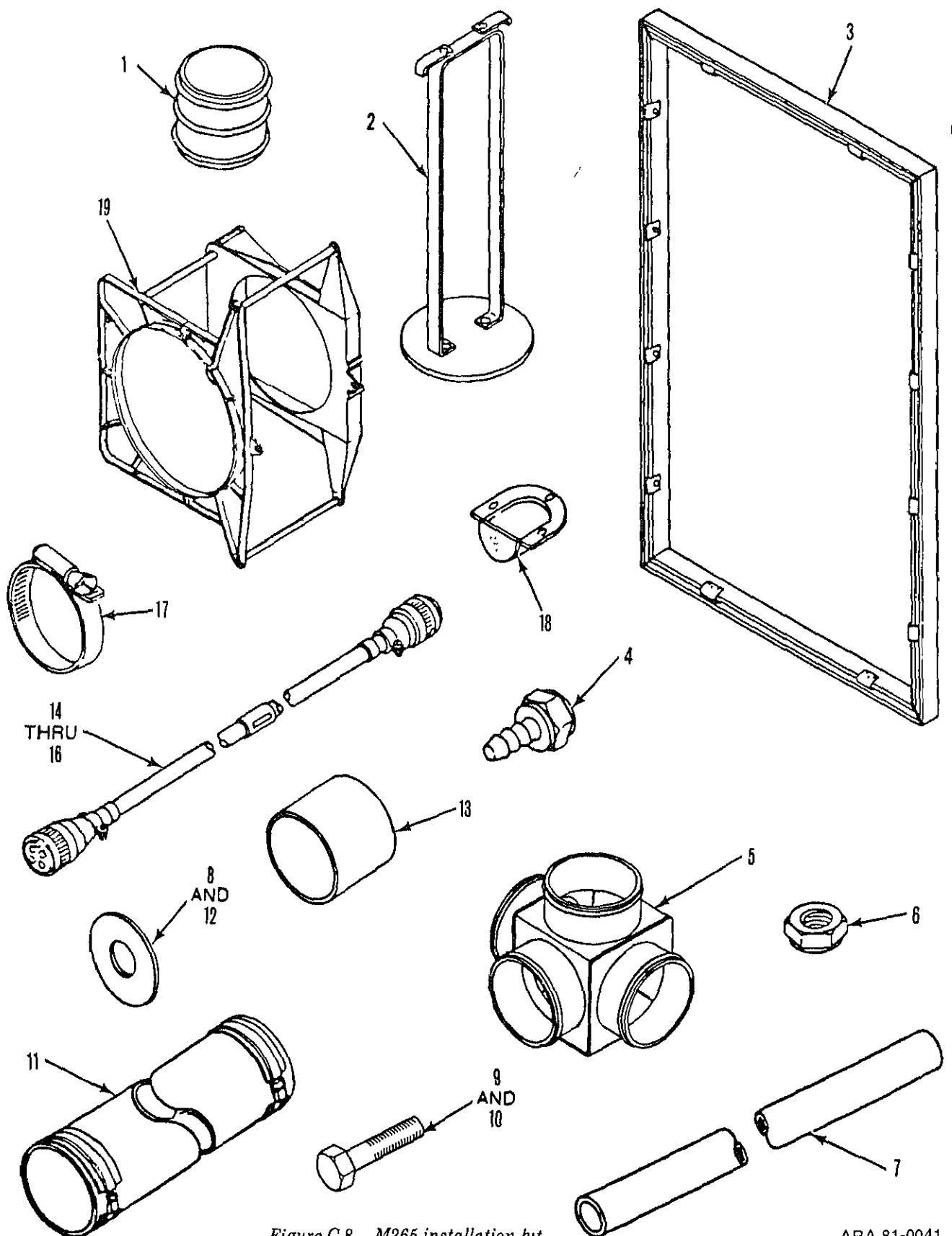


Figure C-8. M265 installation kit

ARA 81-0041

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIG NO	REV NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION	USABLE DN CODE	QTY INC IN UNIT
						GROUP 0300 M265 INSTALLATION KIT		
						PL 5-19-6707		
C-8	1	PAQZZ	4730-01-049-0805	81361	C5-19-6182	COUPLING, AIR DUCT.....	EA	1
C-8	2	PAQZZ	4240-01-052-3783	81361	C5-19-6180	HOLDER, STORAGE, AIR DUCT.....	EA	8
C-8	3	PAQZZ	4240-01-061-7233	81361	E5-19-5908	FRAME, INTERFACE, ENTRANCE.....	EA	1
C-8	4	PAQZZ	4730-01-134-6603	11649	B-4-MHC-3S	ADAPTER, STRAIGHT, PIPE 1/4 PIPE X 3/16 ID. HOSE.....	EA	1
C-8	5	PAQZZ	4240-01-131-8206	81361	E5-19-6686	ADAPTER, AIR DUCT FOUR DUCT.....	EA	1
C-8	6	PAQZZ	5310-00-088-0553	96906	MS21044H5	NUT, SELF-LOCKING, HEXAGON 5/16-24UNF-3D.....	EA	4
C-8	7	MOQZZ		81361	PL 5-19-6707-13	HOSE, LOW PRESSURE, MFD FROM 4720000658682.....	EA	1
C-8	8	PAQZZ	5310-00-080-6004	96906	MS27183-14	WASHER, FLAT STEEL, .406 IN. ID. .812 IN. O.D. .065 IN. THK.....	EA	8
C-8	9	PAQZZ	5306-00-543-4436	96906	MS35308-337	BOLT, MACHINE HEX HD. STEEL, 5/16-24 UNF-2A X 1.375 LG.....	EA	4
C-8	10	PAQZZ	5305-00-680-4262	96906	MS35308-360	SCREW, CAP, HEXAGON HEAD 3/8-24UNF-2A X 1.000 IN. LG.....	EA	8
C-8	11	PAQZZ	4720-01-074-9220	81361	C5-19-6181-10	HOSE, AIR DUCT 6 IN. ID 72 IN. O/A LG.....	EA	9
C-8	12	PAQZZ	5310-00-081-4219	96906	MS27183-12	WASHER, FLAT .344 IN. ID. .688 IN. OD .065 IN. THK.....	EA	4
C-8	13	PAQZZ	4720-01-106-4602	81361	B5-19-6716	HOSE, NONMETALLIC 6.000 IN. ID. 4.000 IN. LG 50 PSI.....	EA	1
C-8	14	PAQZZ	4240-01-111-4649	81361	C5-19-6162-20	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL 240 IN. NOM LG. EXCLUDING TERMINATIONS.....	EA	1
C-8	15	PAQZZ	4240-01-114-2776	81361	C5-19-6712-10	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL 72 IN. NOM LG. EXCLUDING TERMINATIONS.....	EA	1
C-8	16	PAQZZ	4240-01-067-8376	81361	5-19-6170-10	CABLE ASSEMBLY, SPECIAL PURPOSE ELECTRICAL 54 IN. NOM LG. EXCLUDING TERMINATIONS.....	EA	1
C-8	17	PAQZZ	4730-00-908-6294	96906	MS35842-16	CLAMP, HOSE LOW PRESSURE.....	EA	2
C-8	18	PAQZZ	4240-01-049-0804	81361	C5-19-6236	COVER, PROTECTIVE TUBING CONNECTION.....	EA	1
C-8	19	PAQZZ	4240-01-129-0836	81361	D5-19-6290-20	STAND, FILTER UNIT.....	EA	1

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION	USABLE ON CODE	QTY INC IN UNIT
						GROUP 0500 BULK SUPPLIES		
BULK		PA022	4010-00-069-5180	99862	CL2C	CABLE, NYLON COVERED NYLON COVERED.....	FT	4
BULK		PA022	4720-00-065-8682	30327	C403	HOSE, NONMETALLIC LOW PRESSURE, RUBBER, 3/16 IN. NOM. ID ..	FT	3
BULK		PA022	4720-00-996-0381	30327	44P RED	TUBING, NONMETALLIC PLASTIC, 1/4 IN. OD, .040 IN. WALL THK, RED.....	FT	5
BULK		PA022	4720-01-053-0316	30327	44P GREEN	TUBING, NONMETALLIC PLASTIC, 1/4 IN. OD, .040 IN. WALL THK, GREEN.....	FT	5

Section III SPECIAL TOOLS AND EQUIPMENT LIST

Not applicable

Section IV NATIONAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER	FIGURE NO.	ITEM NO.	STOCK NUMBER	FIGURE NO.	ITEM NO.
5310-00-014-5850	C-4	14	4730-00-908-6294	C-8	17
5310-00-045-3296	C-1	3	5310-00-928-9821	C-1	27
5310-00-045-3299	C-1	23	5935-00-990-5580	C-1	28
5305-00-051-4075	C-4	34	4720-00-996-0381	BULK	
4720-00-065-8682	BULK		4730-01-017-5119	C-1	7
5305-00-068-0513	C-4	12	5340-01-032-6929	C-4	30
4010-00-069-5180	BULK		9905-01-048-2790	C-1	21
5310-00-080-6004	C-4	21	5340-01-048-6327	C-1	10
5310-00-080-6004	C-8	8	5340-01-048-6327	C-4	1
5310-00-081-4219	C-4	33	5340-01-048-6327	C-5	12
5310-00-081-4219	C-8	12	4240-01-049-0804	C-1	24
5310-00-088-0553	C-8	6	4240-01-049-0804	C-8	18
5305-00-115-9406	C-1	22	4730-01-049-0805	C-8	1
5305-00-115-9934	C-1	11	9905-01-049-1385	C-1	19
5305-00-115-9934	C-4	2	4730-01-050-7540	C-1	5
5305-00-115-9934	C-5	11	9905-01-050-7556	C-5	3
5305-00-143-8571	C-2	7	9905-01-050-7557	C-4	28
240-00-155-7784	C-2	5	9905-01-051-0186	C-5	2
240-00-155-7932	C-2	6	4240-01-052-3783	C-8	2
5305-00-157-5621	C-5	13	4720-01-053-0316	BULK	
5305-00-179-8946	C-1	2	4240-01-055-1493	C-4	15
5305-00-180-4966	C-4	29	4240-01-057-3378	C-3	3
5310-00-187-2400	C-4	22	5365-01-057-7379	C-4	32
240-00-237-0223	C-3	1	4240-01-061-7233	C-8	3
5305-00-250-0236	C-1	6	9905-01-065-3065	C-6	3
5305-00-269-3240	C-4	23	9905-01-065-9382	C-5	1
220-00-283-9732	C-2	8	9905-01-066-3084	C-4	27
5310-00-435-8983	C-1	29	4240-01-066-3266	C-3	5
5305-00-543-4436	C-8	9	4240-01-067-5605	C-3	4
5305-00-680-4662	C-8	10	4240-01-067-8376	C-8	16
240-00-763-7744	C-2	2	9905-01-067-8634	C-4	26
240-00-763-7744	C-7	1	4730-01-067-9232	C-1	26
5310-00-765-3197	C-1	12	5330-01-068-0515	C-4	25
5310-00-765-3197	C-4	3	9905-01-068-2368	C-1	9
5310-00-765-3197	C-5	6	4240-01-068-8645	C-3	7
5310-00-809-4058	C-4	11	5330-01-069-9824	C-4	19
5310-00-811-3494	C-1	15	4720-01-074-9220	C-8	11
5310-00-811-3494	C-4	9	5330-01-085-4442	C-4	16
5310-00-811-3494	C-5	5	4240-01-105-5393	C-4	18
30-00-817-1891	C-4	31	4240-01-105-5521	C-1	1
30-00-817-1891	C-6	4	4720-01-106-4602	C-8	13
55-00-821-5225	C-2	1	4140-01-107-2246	C-4	10
05-00-824-7363	C-4	13	4730-01-108-2625	C-4	35
10-00-877-5797	C-4	17	4240-01-111-4649	C-8	14
30-00-878-8693	C-1	14	4240-01-114-2976	C-8	15
30-00-878-8693	C-4	5	4240-01-114-3213	C-3	10
30-00-878-8693	C-5	9	4240-01-115-0996	C-1	4
05-00-889-2999	C-2	10	9905-01-128-5824	C-3	2
40-00-892-4420	C-6	1	9905-01-128-5825	C-1	20
10-00-897-6081	C-1	25	9905-01-128-5826	C-2	11
30-00-908-6294	C-1	17	4240-01-129-0836	C-8	19
30-00-908-6294	C-4	6	4240-01-131-5206	C-8	5
30-00-908-6294	C-5	4	4730-01-134-6603	C-8	4

FSCM	PART NUMBER	FIGURE NO.	ITEM NO.	FSCM	PART NUMBER	FIGURE NO.	ITEM NO.
88044	AN960PD616	C-4	22	81361	C5-19-6135	C-4	27
11649	B-4-MHC-3S	C-8	4	81361	C5-19-6145	C-1	10
81361	B5-19-6133	C-4	28	81361	C5-19-6145	C-4	1
81361	B5-19-6134	C-4	26	81361	C5-19-6145	C-5	12
81361	B5-19-6147	C-5	2	81361	C5-19-6149	C-5	1
81361	B5-19-6148	C-5	3	81361	C5-19-6162-20	C-8	14
81361	B5-19-6238	C-1	21	81361	C5-19-6175	C-1	19
81361	B5-19-6347	C-4	32	81361	C5-19-6180	C-8	2
81361	B5-19-6716	C-8	13	81361	C5-19-6181-10	C-8	11
99862	CL-2-C-8.0	C-1	15	81361	C5-19-6182	C-8	1
99862	CL-2-C-8.0	C-4	6	81361	C5-19-6236	C-1	24
99862	CL-2-C-8.0	C-5	10	81361	C5-19-6236	C-8	18
99862	CL-2-FANDCL-2-C-8.0	C-1	13	81361	C5-19-6309	C-1	16
99862	C1-2-FANDCL-2-C-8.0	C-4	4	81361	C5-19-6309	C-4	7
99862	CL-2-FANDCL-2-C-8.0	C-5	8	81361	C5-19-6309	C-5	7
99862	CL2C	BULK		81361	C5-19-6316-13	C-1	20
99862	CL2F	C-1	14	81361	C5-19-6316-14	C-3	2
99862	CL2F	C-4	5	81361	C5-19-6316-6	C-6	3
99862	CL2F	C-5	9	81361	C5-19-6316-8	C-2	11
30327	C403	BULK		81361	C5-19-6654	C-1	26
81361	C5-19-5687-1	C-4	25	81361	C5-19-6712-10	C-8	15
81361	C5-19-5687-2	C-4	19	81361	D5-19-6260	C-4	24

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FSCM	PART NUMBER	FIGURE NO.	ITEM NO.	FSCM	PART NUMBER	FIGURE NO.	ITEM NO.
81361	D5-19-6262	C-3	5	96906	MS27183-41	C-4	3
81361	D5-19-6290-20	C-8	19	96906	MS27183-41	C-5	6
81361	D5-19-6368	C-3	6	96906	MS27183-42	C-4	14
81361	D5-19-6401-20	C-4	35	96906	MS29513-024	C-1	8
81361	E5-19-5908	C-8	3	96906	MS3181-14N	C-1	28
81361	E5-19-6121	C-4	18	96906	MS3186-43	C-1	29
81361	E5-19-6128	C-4	20	96906	MS35206-217	C-2	10
81361	E5-19-6136	C-4	15	96906	MS35308-337	C-8	9
81361	E5-19-6201-50	C-1	1	96906	MS35309-360	C-8	10
81361	E5-19-6308-20	C-3	10	96906	MS35338-42	C-1	23
81361	E5-19-6317-10	C-4	10	96906	MS35338-43	C-1	3
81361	E5-19-6376	C-3	3	96906	MS35478-307	C-2	5
81361	E5-19-6387	C-3	7	96906	MS35691-32	C-1	25
81361	E5-19-6641	C-1	4	96906	MS35842-16	C-1	17
81361	E5-19-6641-74	C-1	6	96906	MS35842-16	C-4	8
81361	E5-19-6686	C-8	5	96906	MS35842-16	C-5	4
81361	E5-19-6699	C-3	1	96906	MS35842-16	C-8	17
81361	E5-19-6699-6	C-3	9	96906	MS51849-53	C-1	22
81361	E5-19-6699-7	C-3	8	96906	MS51849-55	C-1	11
30327	KF03-02PS	C-1	7	96906	MS51849-55	C-4	2
30327	KF03-04RV	C-1	5	96906	MS51849-55	C-5	11
79919	K35B1	C-2	1	96906	MS51849-56	C-5	13
96906	MS21044N08	C-1	18	96906	MS51849-64	C-4	29
96906	MS21044N08	C-4	9	96906	MS51849-66	C-1	2
96906	MS21044N08	C-5	5	96906	MS90727-33	C-4	34
96906	MS21044N3	C-4	17	96906	MS90727-6	C-4	12
96906	MS21044N5	C-8	6	96906	MS90727-64	C-4	23
96906	MS24679-2	C-1	27	96906	MS9352-06	C-4	30
96906	MS25041-8	C-2	3	81349	M15098/11-001	C-6	1
96906	MS25041-8	C-7	3	80205	NAS1096-3-12	C-4	13
96906	MS25235-R311	C-2	6	81361	PL5-19-6707-13	C-8	7
96906	MS25237-387	C-2	2	07137	PTL-A1(3-C7A)	C-6	2
96906	MS25237-387	C-7	1	30327	261P1-4	C-4	31
96906	MS25358-4	C-2	8	30327	261P1-4	C-6	4
96906	MS25358-5	C-2	9	01126	41-601	C-2	4
96906	MS25358-6	C-2	7	04426	44-601	C-7	2
96906	MS27183-10	C-4	11	30327	44P GREEN	BULK	
96906	MS27183-12	C-4	33	30327	44P RED	BULK	
96906	MS27183-12	C-8	12	81361	5-19-6170-10	C-8	16
96906	MS27183-14	C-4	21	81361	5-19-6348	C-4	16
96906	MS27183-14	C-8	8	81361	5-19-6657	C-1	9
96906	MS27183-41	C-1	12	81361	5-19-6718	C-3	4

LENS ONLY
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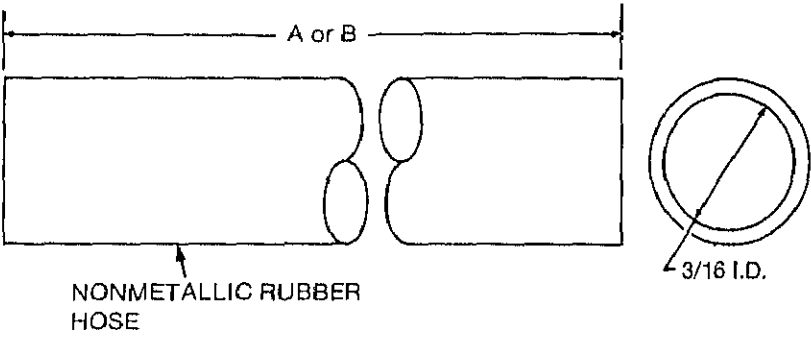
APPENDIX D EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I INTRODUCTION

- D-1. SCOPE.** This appendix lists expendable supplies and materials you will need to operate and maintain the collective protection equipment. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts and Heraldic Items).
- D-2. EXPLANATION OF COLUMNS.**
- a. *Column 1 - Item Number.* This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g. "Use dry-cleaning solvent, item 2, app D").
 - b. *Column 2 - Level.* This column identifies the lowest level of maintenance that requires the listed item.
O - Organizational Maintenance
F - Direct Support Maintenance
 - c. *Column 3 - National Stock Number.* This is the National stock number assigned to the item, use it to request or requisition the item.
 - d. *Column 4 - Description.* Indicates the Federal item name and, if required, a description to identify the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.
 - e. *Column 5 - Unit of Measure (U M).* Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U M
1	0	8040-00-165-8614	ADHESIVE, BONDING VULCANIZED. MMM-A-121 (81348) 1 qt can	QT
2	0	8010-01-055-2319	ALIPHATIC POLYURETHANE COATING: low reflective, chemical agent resistant MIL-C-46168 (MR) 1 gal cntnr	EA
3	0	7920-00-514-2417	BRUSH, ACID SWABBING horsehair bristle, 5 750 length HB643	EA



- NOTES:
- 1. FABRICATE FROM NSN 4720-00-065-8682 STOCK.
 - 2. ALL DIMENSIONS ARE IN INCHES.

	LENGTH
A	12
B	22

Figure E-3. Rubber hose

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GRAPHFIGURE
NOTABLE
NO

1-1

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ITEM 1. LINE 12. Change "Rock Island, IL 61201" to
read, "Aberdeen Proving Ground, MD 21010."

REASON: Wrong address.

2-28

2-12

ITEM 2. Test equipment. Add, "28V dc power
supply capable of delivery 2 amps"

REASON: Incomplete information.

2-43

2-14

ITEM 3. Add callout "20" to the shaft
slinger in the illustration.

REASON: Callout missing from illustration.

SAMPLE

PRINTED NAME GRADE OR TITLE AND TELEPHONE NUMBER

JOHN SMITH, S SGT

793-XXXX

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John Smith

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